

Chemical Analysis Report

WQAP-2017-06-29-04

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-2017-06-26-19**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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Date Certified: 20-JUL-2017 10:39



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: HIAWATHA

Collection Date/Time: 06/28/2017 09:30

Field ID: G1SW0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910181	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P327750	
	EPA 300.0 Rev. 2.1	Chloride	30	A	mg Cl/L	P328145	
		Sulfate	7.4	A	mg SO4/L	P328150	
	SM 2120 B	Color (true)	20		PCU	P327736	
	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	82		mg/L	P328162	
	SM 2540 D-97	TSS	2	I	mg/L	P328175	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P328068	
1910186	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327895	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P327884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327856	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P327964	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P327944	
1910191	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327743	

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: ANN PARKER

Collection Date/Time: 06/28/2017 10:15

Field ID: G1SW0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910182	EPA 180.1 Rev. 2.0	Turbidity	2.4	A	NTU	P327752	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P328145	
		Sulfate	6.0		mg SO4/L	P328150	
	SM 2120 B	Color (true)	17		PCU	P327736	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	93		mg/L	P328162	
	SM 2540 D-97	TSS	6	I	mg/L	P328175	
	SM 4500 F-C-97	Fluoride	0.093	I	mg F/L	P328068	
1910187	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327895	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P327884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327856	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P327964	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P327944	
1910192	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327743	

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: 06/28/2017 11:00

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910183	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P327751	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P328145	
		Sulfate	6.2		mg SO4/L	P328150	

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910183	SM 2120 B	Color (true)	24		PCU	P327736	
	SM 2320 B-97	Total Alkalinity	23	A	mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	89		mg/L	P328162	
	SM 2540 D-97	TSS	3	I	mg/L	P328175	
	SM 4500 F-C-97	Fluoride	0.071	I	mg F/L	P328068	
1910188	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327895	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P327884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327856	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P327964	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P327944	
1910193	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327743	

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: LAKE HARVEY

Collection Date/Time: 06/28/2017 11:35

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910184	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P327751	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P328148	
		Sulfate	4.3		mg SO4/L	P328151	
	SM 2120 B	Color (true)	47	A	PCU	P327736	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	102		mg/L	P328162	
	SM 2540 D-97	TSS	4	I	mg/L	P328175	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P328068	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327895	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P327884	
1910189	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327856	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P327964	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P327944	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327743	

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: 06/28/2017 12:15

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910185	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P327751	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P328148	
		Sulfate	3.9		mg SO4/L	P328151	
	SM 2120 B	Color (true)	46		PCU	P327736	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	176	A	mg/L	P328163	
	SM 2540 D-97	TSS	6	IA	mg/L	P328176	

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910185	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P328068	
1910190	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P327895	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P327957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327856	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P327964	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P327944	
1910195	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P327743	

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: 06/28/2017 12:15

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910220	EPA 8321B	Sucralose**	0.83		ug/L	P327721	
	USGS O-2060-01	2,4-D	0.016		ug/L	P327782	
		Diuron	0.0025	I	ug/L	P327782	
		Fenuron	0.0080	U	ug/L	P327782	
		Imidacloprid	0.055		ug/L	P327782	
		Bentazon	0.026		ug/L	P327782	
		Linuron	0.0040	U	ug/L	P327782	
		Acetaminophen**	0.71		ug/L	P327782	
		MCP	0.0038	I	ug/L	P327782	
		Carbamazepine**	0.0058		ug/L	P327782	
		Triclopyr**	0.0040	U	ug/L	P327782	
		Primidone**	0.027		ug/L	P327782	
		Fluridone**	0.0042		ug/L	P327782	

Ref. Method and Comment:

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327750

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327751

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327752

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

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

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

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

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328151

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327957

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327856

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327964

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327743

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

Reference Method: EPA 8321B
Batch ID: P327721

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P327736

Component	Result	Code	Units
Color (true)	2.5	U	PCU

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

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

Reference Method: SM 2540 C-97
Batch ID: P328162

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P328163

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P328175

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P328176

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

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

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327944

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

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

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
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: P328145

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

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

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327856

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327964

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327743

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

Reference Method: EPA 8321B
Batch ID: P327721

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

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

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

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

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P327944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.9		P	85 - 115

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

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910181	Chloride	95.9		P	90 - 110
1910183	Chloride	96.1		P	90 - 110

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

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910181	Sulfate	98.1		P	90 - 110
1910183	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910279	Sulfate	96.8		P	90 - 110
1910286	Sulfate	96.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910139	Ammonia-N	102	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910189	Kjeldahl Nitrogen	107	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910190	Kjeldahl Nitrogen	95.7	92.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910139	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910187	Total-P	93.6	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910195	O-Phosphate-P	92.9	95.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P327721

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

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

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

Reference Method: SM 5310 B-00
Batch ID: P327944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909993	Organic Carbon	89.0	92.8	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

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

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

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910160	Turbidity	4.82	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910183	Turbidity	8.53	Sample	P	0 - 20

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

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910181	Chloride	0.561	Sample	P	0 - 20

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

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

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910181	Sulfate	2.75	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910286	Sulfate	1.26	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910139	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910189	Kjeldahl Nitrogen	4.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910190	Kjeldahl Nitrogen	1.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910139	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910187	Total-P	4.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910195	O-Phosphate-P	2.64	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P327721

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

Reference Method: SM 2120 B
Batch ID: P327736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910184	Color (true)	0.900	Sample	P	0 - 20

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

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

Reference Method: SM 2540 C-97
Batch ID: P328162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910159	TDS	1.44	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P328163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910185	TDS	3.41	Sample	P	0 - 10

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

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

Reference Method: SM 5310 B-00
Batch ID: P327944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909993	Organic Carbon	3.33	Spike	P	0 - 20

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

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910586	2,4-D	15.2	Spike	P	0 - 30
1910586	Acetaminophen	15.6	Spike	P	0 - 30

Quality Assurance Report Precision

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

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910586	Bentazon	8.08	Spike	P	0 - 30
1910586	Carbamazepine	13.1	Spike	P	0 - 30
1910586	Diuron	17.5	Spike	P	0 - 30
1910586	Fenuron	0.572	Spike	P	0 - 30
1910586	Fluridone	10.9	Spike	P	0 - 30
1910586	Imidacloprid	2.56	Spike	P	0 - 30
1910586	Linuron	14.0	Spike	P	0 - 30
1910586	MCP	8.57	Spike	P	0 - 30
1910586	Primidone	2.19	Spike	P	0 - 30
1910586	Triclopyr	8.89	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 1910220
Field Sample ID: G1SW0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	108	P	40 - 160
USGS O-2060-01	2,4-D-d3	120	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	126	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	111	P	30 - 165
USGS O-2060-01	Diuron-d6	93.8	P	30 - 160
USGS O-2060-01	Primidone-d5	76.5	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77426
Included Lab Sample IDs: 1910191, 1910192, 1910193, 1910194, 1910195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.1	P/P	90 - 110
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A77427
Included Lab Sample IDs: 1910181, 1910182, 1910183, 1910184, 1910185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	96.3	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77435

Included Lab Sample IDs: 1910181, 1910182, 1910183, 1910184, 1910185

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77492

Included Lab Sample IDs: 1910186, 1910187, 1910188, 1910189, 1910190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77506

Included Lab Sample IDs: 1910186, 1910187, 1910188, 1910189, 1910190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77524

Included Lab Sample IDs: 1910186, 1910187, 1910188, 1910189, 1910190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77551

Included Lab Sample IDs: 1910181, 1910182, 1910183, 1910184, 1910185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	103	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Chloride	103	105	P/P	90 - 110
Sulfate	92.9	101	P/P	90 - 110
Sulfate	94.4	100	P/P	90 - 110
Sulfate	96.8	100	P/P	90 - 110
Sulfate	100	92.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77557

Included Lab Sample IDs: 1910181, 1910182, 1910183, 1910184, 1910185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	98.9	P/P	90 - 110
Total Alkalinity	98.9	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A77557

Included Lab Sample IDs: 1910181, 1910182, 1910183, 1910184, 1910185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	97.1	P/P	90 - 110
Fluoride	97.1	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77568

Included Lab Sample IDs: 1910190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77573

Included Lab Sample IDs: 1910186, 1910187, 1910188, 1910189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.5	P/P	90 - 110
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77590

Included Lab Sample IDs: 1910186, 1910187, 1910188, 1910189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	95.3	P/P	90 - 110
Kjeldahl Nitrogen	95.3	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77632

Included Lab Sample IDs: 1910190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A77714

Included Lab Sample IDs: 1910220

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

Reference Method: USGS O-2060-01

Run ID: A77717

Included Lab Sample IDs: 1910220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	93.3	85.3	P/P	60 - 150
Diuron	82.6	84.2	P/P	60 - 150
Fenuron	85.8	90.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
 Run ID: A77717
 Included Lab Sample IDs: 1910220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	78.8	86.1	P/P	60 - 160
Imidacloprid	94.1	81.7	P/P	60 - 150
Linuron	75.9	92.5	P/P	60 - 150
Primidone	90.1	90.0	P/P	60 - 150

Reference Method: EPA 8321B
 Run ID: A77777
 Included Lab Sample IDs: 1910220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	108	127	P/P	60 - 160

Reference Method: USGS O-2060-01
 Run ID: A77797
 Included Lab Sample IDs: 1910220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	110	102	P/P	60 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						4.82	
	Turbidity						8.53	
	Turbidity						1.68	
EPA 300.0 Rev. 2.1	Chloride	99.3		95.9	96.1		0.561	
	Chloride	97.1		96.7	98.7		0.101	
	Sulfate	96.9		98.1	97.1		2.75	
	Sulfate	96.2		96.1	96.8		1.26	
EPA 350.1 Rev. 2.0	Ammonia-N	103		102	99.3			2.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101		107	98.8			4.80
	Kjeldahl Nitrogen	109		95.7	92.3			1.85
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103		104	104			0.482
EPA 365.1 Rev. 2.0	Total-P	100		93.6	98.4			4.84
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9		92.9	95.5			2.64
EPA 8321B	Sucralose	92.8		144	136			6.01
SM 2120 B	Color (true)						0.900	
SM 2320 B-97	Total Alkalinity	101					0.359	
SM 2540 C-97	TDS						1.44	
	TDS						3.41	
SM 4500 F-C-97	Fluoride	94.6		97.4	98.6			0.996
SM 5310 B-00	Organic Carbon	98.9		89.0	92.8			3.33
USGS O-2060-01	2,4-D	77.8						15.2
	Acetaminophen	103						15.6

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Bentazon	60.8	58.8	51.2			8.08
	Carbamazepine	77.3	113	99.1			13.1
	Diuron	65.3	71.3	58.5			17.5
	Fenuron	87.6	91.1	90.6			0.572
	Fluridone	78.3	48.1	40.3			10.9
	Imidacloprid	78.7	156	151			2.56
	Linuron	77.0	85.2	74.0			14.0
	MCPD	69.4	108	99.4			8.57
	Primidone	76.0	85.1	87.0			2.19
	Triclopyr	72.7	94.5	86.4			8.89

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1910181, 1910182, 1910183, 1910184, 1910185
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1910181, 1910182, 1910183, 1910184, 1910185
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1910181, 1910182, 1910183, 1910184, 1910185
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1910186, 1910187, 1910188, 1910189, 1910190
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1910186, 1910187, 1910188, 1910189, 1910190
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1910186, 1910187, 1910188, 1910189, 1910190
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1910186, 1910187, 1910188, 1910189, 1910190
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1910191, 1910192, 1910193, 1910194, 1910195
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1910220
SM 2120 B / E31780	True Color measured at 450 nm	1910181, 1910182, 1910183, 1910184, 1910185
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1910181, 1910182, 1910183, 1910184, 1910185
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1910181, 1910182, 1910183, 1910184, 1910185
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1910181, 1910182, 1910183, 1910184, 1910185
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1910181, 1910182, 1910183, 1910184, 1910185
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1910186, 1910187, 1910188, 1910189, 1910190
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1910220
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1910220

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/29/2017			06/29/2017 16:54	DeAsia Armster	1910181, 1910182, 1910183, 1910184, 1910185
EPA 300.0 Rev. 2.1	06/29/2017			07/07/2017	Ping Hua	1910181, 1910182, 1910183, 1910185
	06/29/2017			07/08/2017	Ping Hua	1910184
EPA 350.1 Rev. 2.0	06/29/2017			07/03/2017	Sofia Elnemr	1910186, 1910187, 1910188, 1910189, 1910190
EPA 351.2 Rev. 2.0	06/29/2017	07/05/2017	Adrian Shelby	07/07/2017	Joseph Suarez	1910186, 1910187, 1910188, 1910189
	06/29/2017	07/06/2017	Adrian Shelby	07/11/2017	Joseph Suarez	1910190
EPA 353.2 Rev. 2.0	06/29/2017			07/03/2017	Beverly Y. Sanders	1910186, 1910187, 1910188, 1910189, 1910190
EPA 365.1 Rev. 2.0	06/29/2017	07/06/2017	Adrian Shelby	07/07/2017	Lipi Saha	1910186, 1910187, 1910188, 1910189, 1910190
EPA 365.1 Rev. 2.0 dissolved	06/29/2017			06/29/2017 12:29	Ping Hua	1910195
	06/29/2017			06/29/2017 12:41	Ping Hua	1910191
	06/29/2017			06/29/2017 12:42	Ping Hua	1910192
	06/29/2017			06/29/2017 12:43	Ping Hua	1910193
	06/29/2017			06/29/2017 12:44	Ping Hua	1910194
EPA 8321B	06/29/2017	07/12/2017	Mohammad Ghaffari	07/14/2017	Mohammad Ghaffari	1910220
SM 2120 B	06/29/2017			06/29/2017 15:01	Julia Storbeck	1910184
	06/29/2017			06/29/2017 15:02	Julia Storbeck	1910181
	06/29/2017			06/29/2017 15:03	Julia Storbeck	1910182
	06/29/2017			06/29/2017 15:04	Julia Storbeck	1910183
	06/29/2017			06/29/2017 15:05	Julia Storbeck	1910185
SM 2320 B-97	06/29/2017			07/06/2017	Dale L. Simmons	1910181, 1910182, 1910183, 1910184, 1910185
SM 2540 C-97	06/29/2017			07/03/2017	Sima Feizi	1910181, 1910182, 1910183, 1910184, 1910185
SM 2540 D-97	06/29/2017			07/03/2017	Sima Feizi	1910181, 1910182, 1910183, 1910184, 1910185
SM 4500 F-C-97	06/29/2017			07/06/2017	Dale L. Simmons	1910181, 1910182, 1910183, 1910184, 1910185
SM 5310 B-00	06/29/2017			07/04/2017	Sofia Elnemr	1910186, 1910187, 1910188, 1910189, 1910190
USGS O-2060-01	06/29/2017	07/03/2017	Hoor Shaik	07/12/2017	Juyoung Kim	1910220
	06/29/2017	07/03/2017	Hoor Shaik	07/19/2017	Juyoung Kim	1910220