

Chemical Analysis Report

WQAP-2017-04-28-02

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

Event Description: **RUN 4**
Request ID: **RQ-2017-04-24-22**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
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Certified by: Colin Wright, Program Administrator

Date Certified: 24-MAY-2017 17:04

A handwritten signature in black ink, appearing to read "Colin Wright", is positioned on a light gray 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: KLOSTERMAN-INBROOK

Collection Date/Time: 04/27/2017 09:50

Field ID: G5SW0039

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894246	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	2.5E+03		mg Cl/L	P324872	
		Sulfate	380		mg SO4/L	P324873	
	SM 2120 B	Color (true)	99		PCU	P324225	
	SM 2320 B-97	Total Alkalinity	198		mg CaCO3/L	P324857	
	SM 2540 C-97	TDS	4.47E+03		mg/L	P324876	
	SM 2540 D-97	TSS	10	I	mg/L	P324925	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P325596	
1894249	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P324428	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324466	
	EPA 365.1 Rev. 2.0	Total-P	0.54		mg P/L	P324458	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P324767	
1894252	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.28		mg P/L	P324238	

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: PASADENA

Collection Date/Time: 04/27/2017 11:10

Field ID: G5SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894247	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	71		mg Cl/L	P324872	
		Sulfate	9.7		mg SO4/L	P324873	
	SM 2120 B	Color (true)	52	A	PCU	P324226	
	SM 2320 B-97	Total Alkalinity	81		mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	244		mg/L	P324876	
	SM 2540 D-97	TSS	31		mg/L	P324925	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P325148	
1894250	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P324265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.8		mg N/L	P324342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324392	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P324350	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P324283	
1894253	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P324238	

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: PP DITCH #5

Collection Date/Time: 04/27/2017 13:00

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894248	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P324872	
		Sulfate	34		mg SO4/L	P324873	

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894248	SM 2120 B	Color (true)	40	A	PCU	P324225	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	390	A	mg/L	P324876	
	SM 2540 D-97	TSS	6	IA	mg/L	P324925	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P325148	
1894251	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P324265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P324342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324392	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P324350	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P324283	
1894254	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P324238	

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: KLOSTERMAN-INBROOK

Collection Date/Time: 04/27/2017 09:50

Field ID: G5SW0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894262	EPA 8321B	Sucralose**	29		ug/L	P324163	
	USGS O-2060-01	2,4-D	0.057		ug/L	P324171	
		Diuron	0.013		ug/L	P324171	
		Fenuron	0.024		ug/L	P324171	
		Imidacloprid	0.017		ug/L	P324171	MS
		Bentazon	0.065		ug/L	P324171	
		Linuron	0.023		ug/L	P324171	
		Acetaminophen**	0.0080	U	ug/L	P324171	
		MCP	0.019		ug/L	P324171	
		Carbamazepine**	0.061		ug/L	P324171	
		Triclopyr**	0.0040	U	ug/L	P324171	
		Primidone**	0.16		ug/L	P324171	
		Fluridone**	0.0032		ug/L	P324171	

Sample Location: PP DITCH #5

Collection Date/Time: 04/27/2017 13:00

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894263	EPA 8321B	Sucralose**	2.7		ug/L	P324163	
	USGS O-2060-01	2,4-D	0.0064		ug/L	P324171	
		Diuron	0.0014	I	ug/L	P324171	
		Fenuron	0.0087	I	ug/L	P324171	
		Imidacloprid	0.016		ug/L	P324171	MS
		Bentazon	0.0090		ug/L	P324171	
		Linuron	0.0040	U	ug/L	P324171	
		Acetaminophen**	0.0080	U	ug/L	P324171	
		MCP	0.0033		ug/L	P324171	
		Carbamazepine**	0.0023		ug/L	P324171	

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894263	USGS O-2060-01	Triclopyr**	0.0040	U	ug/L	P324171	
		Primidone**	0.014	I	ug/L	P324171	
		Fluridone**	0.0084		ug/L	P324171	

Ref. Method and Comment:
USGS O-2060-01: Indaziflam = 8.8E-04 l ug/L.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324230

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324428

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324238

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

Reference Method: EPA 8321B
Batch ID: P324163

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P324225

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P324226

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P324857

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P325144

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P324876

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324925

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325596

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P324283

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

Reference Method: SM 5310 B-00
Batch ID: P324767

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

Reference Method: USGS O-2060-01
Batch ID: P324171

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	0.0040	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	8.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P324171

Component	Result	Code	Units
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: P324872

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324265

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: P324342

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: P324428

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324238

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

Reference Method: EPA 8321B
Batch ID: P324163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	73.6		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P324857

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

Reference Method: SM 2320 B-97
Batch ID: P325144

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

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P324283

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P324767

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

Reference Method: USGS O-2060-01
Batch ID: P324171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	69.0		P	40 - 140
Acetaminophen	43.4		P	40 - 140
Bentazon	47.0		P	40 - 140
Carbamazepine	114		P	40 - 140
Diuron	119		P	40 - 140
Fenuron	106		P	40 - 140
Fluridone	99.5		P	40 - 140
Imidacloprid	108		P	40 - 160
Linuron	106		P	40 - 140
MCP	74.2		P	40 - 140
Primidone	99.7		P	40 - 140
Triclopyr	74.9		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893837	Chloride	99.3		P	90 - 110
1894230	Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893837	Sulfate	95.4		P	90 - 110
1894230	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894223	Ammonia-N	107	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894250	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894396	Kjeldahl Nitrogen	99.1	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895050	Kjeldahl Nitrogen	96.4	92.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894251	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894217	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894395	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893726	Total-P	91.8	90.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894253	O-Phosphate-P	97.3	98.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P324163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893377	Sucralose	109	114	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894180	Fluoride	99.4	98.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893434	Fluoride	96.5	95.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893581	Organic Carbon	103	103	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P324767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894249	Organic Carbon	103		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P324171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893801	2,4-D	64.9	67.1	P/P	40 - 140
1893801	Acetaminophen	87.4	91.4	P/P	40 - 140
1893801	Bentazon	52.8	56.6	P/P	40 - 140
1893801	Carbamazepine	103	107	P/P	40 - 140
1893801	Diuron	88.9	98.4	P/P	40 - 140
1893801	Fenuron	81.5	83.8	P/P	40 - 140
1893801	Fluridone	81.5	86.4	P/P	40 - 140
1893801	Imidacloprid	183	198	F/F	40 - 160
1893801	Linuron	97.5	95.9	P/P	40 - 140
1893801	MCP	57.6	61.7	P/P	40 - 140
1893801	Primidone	103	107	P/P	40 - 140
1893801	Triclopyr	58.8	63.5	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894232	Turbidity	7.02	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894230	Chloride	0.118	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894230	Sulfate	0.173	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894223	Ammonia-N	0.00687	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894250	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894396	Kjeldahl Nitrogen	0.495	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895050	Kjeldahl Nitrogen	3.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894251	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894217	NO2NO3-N	0.870	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894395	Total-P	1.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893726	Total-P	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894253	O-Phosphate-P	1.34	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P324163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893377	Sucralose	4.12	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P324225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894248	Color (true)	1.49	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P324226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894247	Color (true)	0.740	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P324857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893587	Total Alkalinity	0.618	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Total Alkalinity	0.132	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P324876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894248	TDS	3.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P325148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
 Batch ID: P325596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893434	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P324283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893581	Organic Carbon	0.214	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P324767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894249	Organic Carbon	0.482	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P324171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893801	2,4-D	3.17	Spike	P	0 - 30
1893801	Acetaminophen	4.09	Spike	P	0 - 30
1893801	Bentazon	6.47	Spike	P	0 - 30
1893801	Carbamazepine	3.95	Spike	P	0 - 30
1893801	Diuron	9.28	Spike	P	0 - 30
1893801	Fenuron	2.61	Spike	P	0 - 30
1893801	Fluridone	5.75	Spike	P	0 - 30
1893801	Imidacloprid	7.60	Spike	P	0 - 30
1893801	Linuron	1.56	Spike	P	0 - 30
1893801	MCP	6.98	Spike	P	0 - 30
1893801	Primidone	4.20	Spike	P	0 - 30
1893801	Triclopyr	7.72	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: 1894262
Field Sample ID: G5SW0039

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	67.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	63.0	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	80.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	87.2	P	30 - 160
USGS O-2060-01	Diuron-d6	76.8	P	30 - 150
USGS O-2060-01	Primidone-d5	79.9	P	30 - 150

Lab Sample ID: 1894263
Field Sample ID: G5SW0118

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	52.2	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	84.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	66.6	P	30 - 160
USGS O-2060-01	Diuron-d6	57.0	P	30 - 150
USGS O-2060-01	Primidone-d5	77.9	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A76065
Included Lab Sample IDs: 1894246, 1894247, 1894248

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76066
Included Lab Sample IDs: 1894246, 1894247, 1894248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76069
Included Lab Sample IDs: 1894252, 1894253, 1894254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	99.3	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76071
Included Lab Sample IDs: 1894249, 1894250, 1894251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76071

Included Lab Sample IDs: 1894249, 1894250, 1894251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76074

Included Lab Sample IDs: 1894262, 1894263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	119	106	P/P	60 - 150
Sucralose	83.2	109	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A76081

Included Lab Sample IDs: 1894250, 1894251

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76117

Included Lab Sample IDs: 1894250, 1894251

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76147

Included Lab Sample IDs: 1894249

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76152

Included Lab Sample IDs: 1894250, 1894251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76164

Included Lab Sample IDs: 1894250, 1894251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.6	96.6	P/P	90 - 110
Total-P	97.3	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76185

Included Lab Sample IDs: 1894249

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76185

Included Lab Sample IDs: 1894249

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

Reference Method: SM 5310 B-00

Run ID: A76230

Included Lab Sample IDs: 1894249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76258

Included Lab Sample IDs: 1894246

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76269

Included Lab Sample IDs: 1894246, 1894247, 1894248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	96.5	95.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76363

Included Lab Sample IDs: 1894247, 1894248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76363

Included Lab Sample IDs: 1894247, 1894248

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

Reference Method: USGS O-2060-01

Run ID: A76477

Included Lab Sample IDs: 1894262, 1894263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.6	87.6	P/P	50 - 150
Acetaminophen	102	103	P/P	60 - 150
Bentazon	80.8	78.4	P/P	50 - 150
Carbamazepine	90.0	92.0	P/P	60 - 150
Diuron	96.4	103	P/P	60 - 150
Fenuron	93.6	94.4	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A76477

Included Lab Sample IDs: 1894262, 1894263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	97.2	100	P/P	60 - 150
Imidacloprid	97.2	95.2	P/P	60 - 150
Linuron	85.2	84.4	P/P	60 - 150
MCPP	88.0	86.4	P/P	50 - 150
Primidone	88.4	96.0	P/P	60 - 150
Primidone	96.0	104	P/P	60 - 150
Triclopyr	89.6	86.4	P/P	50 - 150

Reference Method: SM 4500 F-C-97

Run ID: A76561

Included Lab Sample IDs: 1894246

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

* 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				7.02	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.1 99.3		0.118	
	Sulfate	95.2	93.7 95.4		0.173	
EPA 350.1 Rev. 2.0	Ammonia-N	104	107 107			0.0068
	Ammonia-N	103	104 102			1.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.1 98.5			0.495
	Kjeldahl Nitrogen	104	96.4 92.6			3.26
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102 102			0.491
	NO2NO3-N	102	102 103			0.870
EPA 365.1 Rev. 2.0	Total-P	98.0	105 107			1.41
	Total-P	98.0	91.8 90.5			1.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.3 98.7			1.34
EPA 8321B	Sucralose	73.6	109 114			4.12
SM 2120 B	Color (true)				1.49	
	Color (true)				0.740	
SM 2320 B-97	Total Alkalinity	103			0.618	
	Total Alkalinity	104			0.132	
SM 2540 C-97	TDS				3.59	
SM 4500 F-C-97	Fluoride	98.7	99.4 98.8			0.483
	Fluoride	98.6	96.5 95.8			0.480
SM 5310 B-00	Organic Carbon	103	103 103			0.214
	Organic Carbon	99.2	103			0.482
USGS O-2060-01	2,4-D	69.0	64.9 67.1			3.17
	Acetaminophen	43.4	87.4 91.4			4.09
	Bentazon	47.0	52.8 56.6			6.47
	Carbamazepine	114	103 107			3.95

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
			LCS	SMP	MS	
USGS O-2060-01	Diuron	119	88.9	98.4		9.28
	Fenuron	106	81.5	83.8		2.61
	Fluridone	99.5	81.5	86.4		5.75
	Imidacloprid	108	183	198		7.60
	Linuron	106	97.5	95.9		1.56
	MCP	74.2	57.6	61.7		6.98
	Primidone	99.7	103	107		4.20
	Triclopyr	74.9	58.8	63.5		7.72

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1894246, 1894247, 1894248
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1894246, 1894247, 1894248
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1894246, 1894247, 1894248
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1894249, 1894250, 1894251
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1894249, 1894250, 1894251
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1894249, 1894250, 1894251
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1894249, 1894250, 1894251
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1894252, 1894253, 1894254
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1894262, 1894263
SM 2120 B / E31780	True Color measured at 450 nm	1894246, 1894247, 1894248
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1894246, 1894247, 1894248
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1894246, 1894247, 1894248
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1894246, 1894247, 1894248
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1894246, 1894247, 1894248
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1894249, 1894250, 1894251
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1894262, 1894263
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1894262, 1894263

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	04/28/2017			04/28/2017 16:01	Sima Feizi	1894246, 1894247, 1894248
EPA 300.0 Rev. 2.1	04/28/2017			05/09/2017	Ping Hua	1894246, 1894247, 1894248
EPA 350.1 Rev. 2.0	04/28/2017			04/28/2017	Julie Michelle Frank	1894249, 1894250, 1894251
EPA 351.2 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/03/2017	Joseph Suarez	1894250, 1894251
	04/28/2017	05/03/2017	Adrian Shelby	05/08/2017	Joseph Suarez	1894249
EPA 353.2 Rev. 2.0	04/28/2017			05/02/2017	Beverly Y. Sanders	1894250, 1894251
	04/28/2017			05/03/2017	Beverly Y. Sanders	1894249
EPA 365.1 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/03/2017	Lipi Saha	1894250, 1894251
	04/28/2017	05/03/2017	Vijayalakshmi Reddy	05/04/2017	Lipi Saha	1894249
EPA 365.1 Rev. 2.0 dissolved	04/28/2017			04/28/2017 15:42	Anthony C. Onicha	1894253
	04/28/2017			04/28/2017 15:58	Anthony C. Onicha	1894252
	04/28/2017			04/28/2017 16:01	Anthony C. Onicha	1894254
EPA 8321B	04/28/2017	04/29/2017	Mohammad Ghaffari	04/29/2017	Mohammad Ghaffari	1894263
	04/28/2017	04/29/2017	Mohammad Ghaffari	04/30/2017	Mohammad Ghaffari	1894262
SM 2120 B	04/28/2017			04/28/2017 15:32	Julia Storbeck	1894248
	04/28/2017			04/28/2017 15:33	Julia Storbeck	1894246
	04/28/2017			04/28/2017 15:42	Julia Storbeck	1894247
SM 2320 B-97	04/28/2017			05/08/2017	Dale L. Simmons	1894246
	04/28/2017			05/10/2017	Dale L. Simmons	1894247, 1894248
SM 2540 C-97	04/28/2017			05/03/2017	Yijie Li	1894246, 1894247, 1894248
SM 2540 D-97	04/28/2017			05/03/2017	Yijie Li	1894246, 1894247, 1894248
SM 4500 F-C-97	04/28/2017			05/10/2017	Dale L. Simmons	1894247, 1894248
	04/28/2017			05/20/2017	Dale L. Simmons	1894246
SM 5310 B-00	04/28/2017			04/29/2017	Julie Michelle Frank	1894250, 1894251
	04/28/2017			05/06/2017	Julie Michelle Frank	1894249
USGS O-2060-01	04/28/2017	05/03/2017	Hoor Shaik	05/15/2017	Juyoung Kim	1894262, 1894263