Chemical Analysis Report

SW-DIST-2018-06-05-01

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

Event Description: **Gilley Crk**
Request ID: **RQ-2018-06-04-06**
Customer: **SW-DIST**
Project ID: **SMP**

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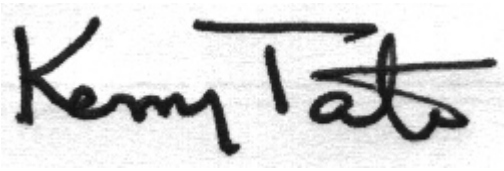
Date Certified: 03-JUL-2018 13:07



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: Gilley Creek @ Stricklands **Collection Date/Time: 06/04/2018 09:35**

Field ID: G2SW0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997469	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P346435	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P346587	
		Sulfate	21		mg SO4/L	P346589	
	SM 2120 B	Color (true)	200		PCU	P346416	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P346670	
	SM 2540 C-97	TDS	121		mg/L	P347011	
	SM 2540 D-97	TSS	4	I	mg/L	P347018	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P346673	
1997470	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P346804	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P346856	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P346512	
	EPA 365.1 Rev. 2.0	Total-P	0.61		mg P/L	P346762	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P347091	
1997471	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.55		mg P/L	P346407	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Gilley Creek @ Stricklands **Collection Date/Time: 06/04/2018 09:35**

Field ID: G2SW0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997480	EPA 8321B	2,4-D	0.0023	I	ug/L	P346244	
		Bentazon	8.0E-04	U	ug/L	P346244	
		MCPP	0.0020	U	ug/L	P346244	
		Triclopyr**	0.0040	U	ug/L	P346244	
		Imidacloprid	0.013		ug/L	P346244	MS
		Diuron	0.0020	U	ug/L	P346244	
		Pyraclostrobin**	0.0020	U	ug/L	P346244	
		Primidone**	0.0040	U	ug/L	P346244	
		Linuron	0.0040	U	ug/L	P346244	
		Acetaminophen**	0.0080	U	ug/L	P346244	
		Fenuron	0.016	U	ug/L	P346244	
		Imazapyr**	0.048		ug/L	P346244	
		Carbamazepine**	4.0E-04	U	ug/L	P346244	
		Fluridone**	4.0E-04	U	ug/L	P346244	
		Hydrocodone**	8.0E-04	U	ug/L	P346244	
		Sucralose**	0.010	U	ug/L	P346269	

Sample Location: Gilley Crk Downstream **Collection Date/Time: 06/04/2018 10:13**

Field ID: G2SW0039 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997481	EPA 8321B	2,4-D	0.017		ug/L	P346244	
		Bentazon	8.0E-04	U	ug/L	P346244	
		MCPP	0.0020	U	ug/L	P346244	
		Triclopyr**	0.0040	U	ug/L	P346244	
		Imidacloprid	0.015		ug/L	P346244	MS
		Diuron	0.0020	U	ug/L	P346244	
		Pyraclostrobin**	0.017		ug/L	P346244	
		Primidone**	0.0040	U	ug/L	P346244	
		Linuron	0.0040	U	ug/L	P346244	
		Acetaminophen**	0.0080	U	ug/L	P346244	
		Fenuron	0.016	U	ug/L	P346244	
		Imazapyr**	0.029		ug/L	P346244	
		Carbamazepine**	4.0E-04	U	ug/L	P346244	
		Fluridone**	4.0E-04	U	ug/L	P346244	
		Hydrocodone**	8.0E-04	U	ug/L	P346244	
		Sucralose**	0.010	U	ug/L	P346269	

Ref. Method and Comment:
EPA 8321B: Results confirmed in reanalysis.

Sample Location: Gilley Crk Downstream **Collection Date/Time: 06/04/2018 10:15**

Field ID: G2SW0039_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997482	EPA 8321B	2,4-D	0.020		ug/L	P346244	
		Bentazon	8.0E-04	U	ug/L	P346244	
		MCPP	0.0020	U	ug/L	P346244	
		Triclopyr**	0.0040	U	ug/L	P346244	
		Imidacloprid	0.015		ug/L	P346244	MS
		Diuron	0.0020	U	ug/L	P346244	
		Pyraclostrobin**	0.014		ug/L	P346244	
		Primidone**	0.0040	U	ug/L	P346244	
		Linuron	0.0040	U	ug/L	P346244	
		Acetaminophen**	0.0080	U	ug/L	P346244	
		Fenuron	0.016	U	ug/L	P346244	
		Imazapyr**	0.031		ug/L	P346244	
		Carbamazepine**	4.0E-04	U	ug/L	P346244	
		Fluridone**	4.0E-04	U	ug/L	P346244	
		Hydrocodone**	8.0E-04	U	ug/L	P346244	
		Sucralose**	0.010	U	ug/L	P346269	

Ref. Method and Comment:
EPA 8321B: Results confirmed in reanalysis.

Sample Location: Field Blank_06042018 **Collection Date/Time: 06/04/2018 10:30**

Field ID: BLANK Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997483	EPA 8321B	2,4-D	0.0020	U	ug/L	P346244	
		Bentazon	8.0E-04	U	ug/L	P346244	
		MCPP	0.0020	U	ug/L	P346244	
		Triclopyr**	0.0040	U	ug/L	P346244	
		Imidacloprid	0.0020	U	ug/L	P346244	MS
		Diuron	0.0020	U	ug/L	P346244	
		Pyraclostrobin**	0.0020	U	ug/L	P346244	
		Primidone**	0.0040	U	ug/L	P346244	
		Linuron	0.0040	U	ug/L	P346244	
		Acetaminophen**	0.0080	U	ug/L	P346244	
		Fenuron	0.016	U	ug/L	P346244	
		Imazapyr**	0.0040	U	ug/L	P346244	
		Carbamazepine**	4.0E-04	U	ug/L	P346244	
		Fluridone**	4.0E-04	U	ug/L	P346244	
		Hydrocodone**	8.0E-04	U	ug/L	P346244	
		Sucralose**	0.010	U	ug/L	P346468	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346435

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346587

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346589

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346804

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346512

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346762

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

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

Reference Method: EPA 8321B
Batch ID: P346244

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P346244

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P346269

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P346468

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P346416

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P346670

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

Reference Method: SM 2540 C-97
Batch ID: P347011

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P347018

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P347091

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346587

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346589

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346804

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346512

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346762

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

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

Reference Method: EPA 8321B
Batch ID: P346244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.9		P	40 - 150
Acetaminophen	117		P	30 - 150
Bentazon	77.3		P	30 - 150
Carbamazepine	105		P	40 - 150
Diuron	95.1		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	101		P	40 - 150
Hydrocodone	94.7		P	40 - 150
Imazapyr	86.4		P	40 - 150
Imidacloprid	125		P	40 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P346244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	92.1		P	40 - 150
MCPP	117		P	40 - 150
Primidone	120		P	40 - 150
Pyraclostrobin	101		P	40 - 150
Triclopyr	109		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	91.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	82.3		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P346670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997142	Chloride	103		P	90 - 110
1997250	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997250	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997414	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997334	Kjeldahl Nitrogen	103	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997496	NO2NO3-N	92.0	92.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997412	Total-P	98.4	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997336	O-Phosphate-P	96.1	97.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P346244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996578	2,4-D	59.0	45.5	P/P	40 - 150
1996578	Acetaminophen	113	117	P/P	30 - 150
1996578	Bentazon	65.3	60.6	P/P	30 - 150
1996578	Carbamazepine	99.4	98.2	P/P	40 - 150
1996578	Diuron	70.0	70.9	P/P	40 - 150
1996578	Fenuron	84.3	83.8	P/P	40 - 150
1996578	Fluridone	80.7	82.0	P/P	40 - 150
1996578	Hydrocodone	73.0	82.1	P/P	40 - 150
1996578	Imazapyr	58.8	61.4	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P346244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996578	Imidacloprid	199	189	F/F	40 - 160
1996578	Linuron	73.5	79.9	P/P	40 - 150
1996578	MCPP	141	138	P/P	40 - 150
1996578	Primidone	102	98.4	P/P	40 - 150
1996578	Pyraclostrobin	94.2	90.2	P/P	40 - 150
1996578	Triclopyr	129	135	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996704	Sucralose	91.9	90.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998021	Sucralose	83.8	82.7	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997945	Fluoride	98.5	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997329	Organic Carbon	98.4	98.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997364	Turbidity	6.69	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997142	Chloride	0.676	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997142	Sulfate	0.357	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997414	Ammonia-N	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997334	Kjeldahl Nitrogen	5.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997496	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997412	Total-P	0.0246	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997336	O-Phosphate-P	1.01	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P346244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996578	2,4-D	16.3	Spike	P	0 - 30
1996578	Acetaminophen	3.00	Spike	P	0 - 30
1996578	Bentazon	7.47	Spike	P	0 - 30
1996578	Carbamazepine	1.20	Spike	P	0 - 30
1996578	Diuron	0.523	Spike	P	0 - 30
1996578	Fenuron	0.572	Spike	P	0 - 30
1996578	Fluridone	1.66	Spike	P	0 - 30
1996578	Hydrocodone	11.8	Spike	P	0 - 30
1996578	Imazapyr	2.50	Spike	P	0 - 30
1996578	Imidacloprid	4.68	Spike	P	0 - 30
1996578	Linuron	8.33	Spike	P	0 - 30
1996578	MCPP	2.29	Spike	P	0 - 30
1996578	Primidone	4.04	Spike	P	0 - 30
1996578	Pyraclostrobin	4.38	Spike	P	0 - 30
1996578	Triclopyr	4.50	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P346269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996704	Sucralose	1.66	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P346468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998021	Sucralose	1.34	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P346416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997328	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Total Alkalinity	0.723	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P347011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997364	TDS	2.29	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Fluoride	0.513	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P347091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997329	Organic Carbon	0.217	Spike	P	0 - 20

* 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: 1997480
Field Sample ID: G2SW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.0	P	30 - 160
EPA 8321B	Diuron-d6	52.9	P	30 - 160
EPA 8321B	Primidone-d5	95.2	P	30 - 160
EPA 8321B	Sucralose-d6	98.1	P	40 - 160

Lab Sample ID: 1997481
Field Sample ID: G2SW0039

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	83.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	118	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	60.8	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	40 - 160

Lab Sample ID: 1997482
Field Sample ID: G2SW0039_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	98.0	P	30 - 160
EPA 8321B	Diuron-d6	55.9	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	90.8	P	40 - 160

Lab Sample ID: 1997483
Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	115	P	30 - 160
EPA 8321B	Carbamazepine-d10	134	P	30 - 160
EPA 8321B	Diuron-d6	86.6	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84339
Included Lab Sample IDs: 1997469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84357
Included Lab Sample IDs: 1997471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	98.2	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A84360
Included Lab Sample IDs: 1997469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84364
Included Lab Sample IDs: 1997469

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84398
Included Lab Sample IDs: 1997470

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

Reference Method: EPA 8321B
Run ID: A84402
Included Lab Sample IDs: 1997480, 1997481, 1997482

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.1	98.7	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A84454
Included Lab Sample IDs: 1997480, 1997483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.3	87.1	P/P	50 - 150
Bentazon	109	109	P/P	50 - 150
MCPP	102	90.2	P/P	50 - 150
Triclopyr	99.8	96.7	P/P	50 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A84488
Included Lab Sample IDs: 1997480, 1997481, 1997482, 1997483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	146	150	P/P	60 - 150
Carbamazepine	139	150	P/P	60 - 150
Diuron	136	123	P/P	60 - 150
Fenuron	102	108	P/P	60 - 150
Fluridone	134	133	P/P	60 - 160
Hydrocodone	109	114	P/P	60 - 150
Imazapyr	97.9	105	P/P	50 - 150
Imidacloprid	106	111	P/P	60 - 150
Linuron	147	140	P/P	60 - 150
Primidone	138	117	P/P	60 - 150
Pyraclostrobin	144	138	P/P	60 - 150

Reference Method: SM 2320 B-97
Run ID: A84489
Included Lab Sample IDs: 1997469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A84489
Included Lab Sample IDs: 1997469

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

Reference Method: EPA 8321B
Run ID: A84525
Included Lab Sample IDs: 1997483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	122	81.6	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84534
Included Lab Sample IDs: 1997470

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84569
Included Lab Sample IDs: 1997470

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84626
Included Lab Sample IDs: 1997470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	96.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84672
Included Lab Sample IDs: 1997470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.2	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A84973
Included Lab Sample IDs: 1997481, 1997482

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	103	P/P	50 - 150
Bentazon	127	117	P/P	50 - 160
MCPP	110	110	P/P	50 - 150
Triclopyr	106	108	P/P	50 - 150

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.69	
EPA 300.0 Rev. 2.1	Chloride	101	103	105		0.676	
	Sulfate	101	104			0.357	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	100			1.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	103	95.0			5.34
EPA 353.2 Rev. 2.0	NO2NO3-N	100	92.0	92.4			0.484
EPA 365.1 Rev. 2.0	Total-P	101	98.4	98.3			0.0246
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.1	97.5			1.01
EPA 8321B	2,4-D	65.9	59.0	45.5			16.3
	Acetaminophen	117	113	117			3.00
	Bentazon	77.3	65.3	60.6			7.47
	Carbamazepine	105	99.4	98.2			1.20
	Diuron	95.1	70.0	70.9			0.523
	Fenuron	101	84.3	83.8			0.572
	Fluridone	101	80.7	82.0			1.66
	Hydrocodone	94.7	73.0	82.1			11.8
	Imazapyr	86.4	58.8	61.4			2.50
	Imidacloprid	125	199	189			4.68
	Linuron	92.1	73.5	79.9			8.33
	MCPP	117	141	138			2.29
	Primidone	120	102	98.4			4.04
	Pyraclostrobin	101	94.2	90.2			4.38
	Sucralose	91.1	91.9	90.3			1.66
	Sucralose	82.3	83.8	82.7			1.34
	Triclopyr	109	129	135			4.50
SM 2120 B	Color (true)					1.42	
SM 2320 B-97	Total Alkalinity	104				0.723	
SM 2540 C-97	TDS					2.29	
SM 4500 F-C-97	Fluoride	95.9	98.5	97.7			0.513
SM 5310 B-00	Organic Carbon	98.6	98.4	98.8			0.217

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1997469
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1997469
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1997469
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1997470
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1997470
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1997470
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1997470
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1997471
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1997480, 1997481, 1997482, 1997483
SM 2120 B / E31780	True Color measured at 450 nm	1997469
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1997469
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1997469
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1997469

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1997469
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1997470

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	06/05/2018			06/05/2018 17:06	William L. Brown IV	1997469
EPA 300.0 Rev. 2.1	06/05/2018			06/06/2018 23:47	Lipi Saha	1997469
EPA 350.1 Rev. 2.0	06/05/2018			06/12/2018 11:22	Ping Hua	1997470
EPA 351.2 Rev. 2.0	06/05/2018	06/13/2018 10:30	Adrian Shelby	06/15/2018 13:29	Joseph Suarez	1997470
EPA 353.2 Rev. 2.0	06/05/2018			06/06/2018 17:17	Lauren Bottorf	1997470
EPA 365.1 Rev. 2.0	06/05/2018	06/12/2018 12:15	Lipi Saha	06/13/2018 14:10	Beverly Y. Sanders	1997470
EPA 365.1 Rev. 2.0 dissolved	06/05/2018			06/05/2018 15:25	Megan Treadwell	1997471
EPA 8321B	06/05/2018	06/05/2018 12:00	Hoor Shaik	06/07/2018 13:40	Juyoung Kim	1997483
	06/05/2018	06/05/2018 12:00	Hoor Shaik	06/09/2018 15:11	Juyoung Kim	1997483
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/05/2018 23:07	Mohammad Ghaffari	1997480
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/05/2018 23:25	Mohammad Ghaffari	1997481
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/05/2018 23:44	Mohammad Ghaffari	1997482
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/07/2018 11:56	Juyoung Kim	1997480
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/09/2018 13:27	Juyoung Kim	1997480
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/09/2018 14:01	Juyoung Kim	1997481
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/09/2018 14:36	Juyoung Kim	1997482
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/30/2018 22:56	Juyoung Kim	1997481
	06/05/2018	06/05/2018 14:00	Hoor Shaik	06/30/2018 23:31	Juyoung Kim	1997482
	06/05/2018	06/07/2018 16:00	Hoor Shaik	06/07/2018 23:04	Mohammad Ghaffari	1997483
SM 2120 B	06/05/2018			06/05/2018 15:33	Tanya Welborn	1997469
SM 2320 B-97	06/05/2018			06/08/2018 02:28	Dale L. Simmons	1997469
SM 2540 C-97	06/05/2018			06/07/2018 17:38	Yijie Li	1997469
SM 2540 D-97	06/05/2018			06/07/2018 17:38	Yijie Li	1997469
SM 4500 F-C-97	06/05/2018			06/08/2018 02:28	Dale L. Simmons	1997469
SM 5310 B-00	06/05/2018			06/18/2018 20:00	Megan Treadwell	1997470