

Chemical Analysis Report

SW-DIST-2018-04-19-01

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

Event Description: **WOLF SIMS Mckay Rice**

Request ID: **RQ-2018-04-16-06**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

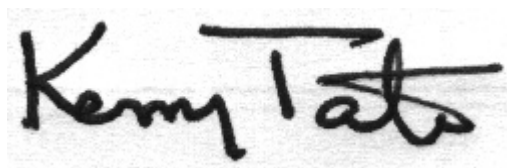
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-MAY-2018 09:35

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: SIMS BRANCH @ PORT REDWING

Collection Date/Time: 04/18/2018 10:35

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986040	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P343766	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P344174	RPD
	SM 2540 D-97	TSS	13		mg/L	P343918	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P344178	
1986043	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P344166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P343884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P343847	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P343919	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P343982	
1986046	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P343762	

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: BIGGEST FLOWING DITCH @ 45TH

Collection Date/Time: 04/18/2018 09:55

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986041	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P343766	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P344174	RPD
	SM 2540 D-97	TSS	51		mg/L	P343915	
	SM 4500 F-C-97	Fluoride	0.53		mg F/L	P344178	
1986044	EPA 350.1 Rev. 2.0	Ammonia-N	0.41		mg N/L	P344166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P343884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P343847	
	EPA 365.1 Rev. 2.0	Total-P	0.73		mg P/L	P343919	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P343982	
1986047	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.63		mg P/L	P343762	

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: BIGGEST FLOWING DITCH @ 45TH

Collection Date/Time: 04/18/2018 09:55

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986059	EPA 8321B	2,4-D	0.092		ug/L	P343718	
		Bentazon	8.0E-04	U	ug/L	P343718	
		MCP	0.052		ug/L	P343718	
		Triclopyr**	0.0040	U	ug/L	P343718	
		Imidacloprid	0.022		ug/L	P343718	MS
		Diuron	0.0033	I	ug/L	P343718	
		Pyraclostrobin**	0.0020	U	ug/L	P343718	
		Primidone**	0.0040	U	ug/L	P343718	
		Linuron	0.0040	U	ug/L	P343718	
		Acetaminophen**	0.027	I	ug/L	P343718	
		Fenuron	0.0080	U	ug/L	P343718	

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986059	EPA 8321B	Imazapyr**	0.014	I	ug/L	P343718	
		Carbamazepine**	0.0030		ug/L	P343718	
		Fluridone**	5.3E-04	I	ug/L	P343718	
		Hydrocodone**	8.0E-04	U	ug/L	P343718	
		Sucralose**	0.72		ug/L	P343665	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: WOLF BRANCH CANAL

Collection Date/Time: 04/18/2018 11:05

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986042	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P343766	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P344174	RPD
	SM 2540 D-97	TSS	4	I	mg/L	P343918	
	SM 4500 F-C-97	Fluoride	0.96		mg F/L	P344178	
1986045	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P344166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P343884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P343847	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P343919	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P343982	
1986048	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P343762	

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: WOLF BRANCH CANAL

Collection Date/Time: 04/18/2018 11:05

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986060	EPA 8321B	2,4-D	0.034		ug/L	P343718	
		Bentazon	0.020		ug/L	P343718	
		MCP	0.0097		ug/L	P343718	
		Triclopyr**	0.0040	U	ug/L	P343718	
		Imidacloprid	0.019		ug/L	P343718	MS
		Diuron	0.0028	I	ug/L	P343718	
		Pyraclostrobin**	0.0020	U	ug/L	P343718	
		Primidone**	0.0040	U	ug/L	P343718	
		Linuron	0.0040	U	ug/L	P343718	
		Acetaminophen**	0.0080	U	ug/L	P343718	
		Fenuron	0.0080	U	ug/L	P343718	
		Imazapyr**	0.013	I	ug/L	P343718	
		Carbamazepine**	0.0013	I	ug/L	P343718	
		Fluridone**	0.086		ug/L	P343718	
		Hydrocodone**	8.0E-04	U	ug/L	P343718	
		Sucralose**	0.43		ug/L	P343719	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: RICE @ BALM RIVERVIEW

Collection Date/Time: 04/18/2018 11:55

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986061	EPA 8321B	2,4-D	0.0020	U	ug/L	P343718	
		Bentazon	0.085		ug/L	P343718	
		MCP	0.0020	U	ug/L	P343718	
		Triclopyr**	0.0040	U	ug/L	P343718	
		Imidacloprid	0.026		ug/L	P343718	MS
		Diuron	0.66		ug/L	P343718	
		Pyraclostrobin**	0.0020	U	ug/L	P343718	
		Primidone**	0.034		ug/L	P343718	
		Linuron	0.0040	U	ug/L	P343718	
		Acetaminophen**	0.0080	U	ug/L	P343718	
		Fenuron	0.092		ug/L	P343718	
		Imazapyr**	0.31		ug/L	P343718	
		Carbamazepine**	0.0097		ug/L	P343718	
		Fluridone**	0.0056		ug/L	P343718	
		Hydrocodone**	8.0E-04	U	ug/L	P343718	
		Sucralose**	1.3		ug/L	P343719	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr 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: P343766

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344166

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P343884

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P343847

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P343919

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343762

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

Reference Method: EPA 8321B
Batch ID: P343665

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343718

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	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: P343719

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P344174

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

Reference Method: SM 2540 D-97
Batch ID: P343915

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P343918

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343982

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344166

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343884

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: P343847

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: P343919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343762

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

Reference Method: EPA 8321B
Batch ID: P343665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P343665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	105		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	95.8		P	40 - 150
Acetaminophen	94.1		P	30 - 150
Bentazon	105		P	30 - 150
Carbamazepine	104		P	40 - 150
Diuron	83.2		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	90.0		P	40 - 150
Hydrocodone	107		P	40 - 150
Imazapyr	120		P	40 - 150
Imidacloprid	114		P	40 - 160
Linuron	98.9		P	40 - 150
MCPP	98.6		P	40 - 150
Primidone	105		P	40 - 150
Pyraclostrobin	84.1		P	40 - 150
Triclopyr	105		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.0		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P344174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P344178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P343982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985154	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986260	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986043	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986043	Total-P	97.4	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985771	O-Phosphate-P	98.6	99.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985613	Sucralose	71.3	65.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985800	2,4-D	73.2	69.0	P/P	40 - 150
1985800	Acetaminophen	105	110	P/P	30 - 150
1985800	Bentazon	43.0	42.4	P/P	30 - 150
1985800	Carbamazepine	77.0	80.9	P/P	40 - 150
1985800	Diuron	69.8	69.4	P/P	40 - 150
1985800	Fenuron	75.8	78.8	P/P	40 - 150
1985800	Fluridone	74.5	76.3	P/P	40 - 150
1985800	Hydrocodone	108	114	P/P	40 - 150
1985800	Imidacloprid	193	201	F/F	40 - 160
1985800	Linuron	88.0	101	P/P	40 - 150
1985800	MCP	70.2	65.1	P/P	40 - 150
1985800	Primidone	91.2	101	P/P	40 - 150
1985800	Pyraclostrobin	80.2	81.6	P/P	40 - 150
1985800	Triclopyr	78.2	78.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986060	Sucralose	46.4	49.1	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986386	Fluoride	94.7	96.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985770	Organic Carbon	92.0	91.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986040	Turbidity	0.183	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985154	Ammonia-N	0.742	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986260	Kjeldahl Nitrogen	1.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986043	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986043	Total-P	1.90	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985771	O-Phosphate-P	0.707	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985613	Sucralose	7.89	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985800	2,4-D	4.35	Spike	P	0 - 30
1985800	Acetaminophen	4.74	Spike	P	0 - 30
1985800	Bentazon	0.982	Spike	P	0 - 30
1985800	Carbamazepine	4.92	Spike	P	0 - 30
1985800	Diuron	0.635	Spike	P	0 - 30
1985800	Fenuron	3.77	Spike	P	0 - 30
1985800	Fluridone	2.34	Spike	P	0 - 30
1985800	Hydrocodone	5.46	Spike	P	0 - 30
1985800	Imazapyr	1.13	Spike	P	0 - 30
1985800	Imidacloprid	3.76	Spike	P	0 - 30
1985800	Linuron	13.8	Spike	P	0 - 30
1985800	MCP	7.45	Spike	P	0 - 30
1985800	Primidone	9.71	Spike	P	0 - 30
1985800	Pyraclostrobin	1.74	Spike	P	0 - 30
1985800	Triclopyr	0.270	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986060	Sucralose	4.17	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P344174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986386	Total Alkalinity	1.95	Sample	F	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986386	Fluoride	0.953	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P343982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985770	Organic Carbon	0.735	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: 1986059
Field Sample ID: G1SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	42.5	P	30 - 160
EPA 8321B	2,4-D-d3	42.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	119	P	30 - 160
EPA 8321B	Acetaminophen-d4	119	P	30 - 160
EPA 8321B	Carbamazepine-d10	84.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	84.0	P	30 - 160
EPA 8321B	Diuron-d6	48.5	P	30 - 160
EPA 8321B	Diuron-d6	48.5	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	76.5	P	40 - 160
EPA 8321B	Sucralose-d6	76.5	P	40 - 160

Lab Sample ID: 1986060
Field Sample ID: G1SW0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	77.5	P	30 - 160
EPA 8321B	2,4-D-d3	77.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	77.1	P	30 - 160
EPA 8321B	Diuron-d6	77.1	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	50.3	P	40 - 160
EPA 8321B	Sucralose-d6	50.3	P	40 - 160

Lab Sample ID: 1986061
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	74.8	P	30 - 160
EPA 8321B	2,4-D-d3	74.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	112	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1986061
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	106	P	30 - 160
EPA 8321B	Diuron-d6	79.0	P	30 - 160
EPA 8321B	Diuron-d6	79.0	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	71.7	P	40 - 160
EPA 8321B	Sucralose-d6	71.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83350
Included Lab Sample IDs: 1986046, 1986047, 1986048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.1	P/P	90 - 110
O-Phosphate-P	98.8	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83351
Included Lab Sample IDs: 1986040, 1986041, 1986042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	98.5	P/P	95 - 105

Reference Method: EPA 8321B
Run ID: A83370
Included Lab Sample IDs: 1986059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	92.8	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83382
Included Lab Sample IDs: 1986043, 1986044, 1986045

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83417
Included Lab Sample IDs: 1986043, 1986044, 1986045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83418

Included Lab Sample IDs: 1986043, 1986044, 1986045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	106	P/P	90 - 110
Total-P	104	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83430

Included Lab Sample IDs: 1986043, 1986044, 1986045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.9	91.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83449

Included Lab Sample IDs: 1986060, 1986061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	71.2	84.3	P/P	60 - 150
Sucralose	82.5	71.2	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83491

Included Lab Sample IDs: 1986043, 1986044, 1986045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	104	P/P	90 - 110
Ammonia-N	103	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83492

Included Lab Sample IDs: 1986040, 1986041, 1986042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83492

Included Lab Sample IDs: 1986040, 1986041, 1986042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83753

Included Lab Sample IDs: 1986059, 1986060, 1986061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	105	P/P	50 - 150
Acetaminophen	107	102	P/P	60 - 150
Acetaminophen	109	107	P/P	60 - 150
Bentazon	136	140	P/P	50 - 150
Carbamazepine	100	117	P/P	60 - 150
Carbamazepine	117	116	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83753

Included Lab Sample IDs: 1986059, 1986060, 1986061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	106	91.2	P/P	60 - 150
Diuron	86.2	106	P/P	60 - 150
Fenuron	116	115	P/P	60 - 150
Fenuron	117	116	P/P	60 - 150
Fluridone	103	99.4	P/P	60 - 160
Fluridone	104	103	P/P	60 - 160
Hydrocodone	112	112	P/P	60 - 150
Hydrocodone	112	117	P/P	60 - 150
Imazapyr	116	117	P/P	50 - 150
Imazapyr	122	116	P/P	50 - 150
Imidacloprid	108	108	P/P	60 - 150
Imidacloprid	108	108	P/P	60 - 150
Linuron	109	109	P/P	60 - 150
Linuron	112	109	P/P	60 - 150
MCPP	106	105	P/P	50 - 150
Primidone	95.4	98.3	P/P	60 - 150
Primidone	98.3	96.2	P/P	60 - 150
Pyraclostrobin	101	102	P/P	60 - 150
Pyraclostrobin	102	103	P/P	60 - 150
Triclopyr	115	108	P/P	50 - 160

* 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				0.183	
EPA 350.1 Rev. 2.0	Ammonia-N	100	103 104			0.742
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	103 106			1.85
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104 105			0.442
EPA 365.1 Rev. 2.0	Total-P	105	97.4 95.1			1.90
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.6 99.3			0.707
EPA 8321B	2,4-D	95.8	73.2 69.0			4.35
	Acetaminophen	94.1	105 110			4.74
	Bentazon	105	43.0 42.4			0.982
	Carbamazepine	104	77.0 80.9			4.92
	Diuron	83.2	69.8 69.4			0.635
	Fenuron	112	75.8 78.8			3.77
	Fluridone	90.0	74.5 76.3			2.34
	Hydrocodone	107	108 114			5.46
	Imazapyr	120				1.13
	Imidacloprid	114	193 201			3.76
	Linuron	98.9	88.0 101			13.8
	MCPP	98.6	70.2 65.1			7.45
	Primidone	105	91.2 101			9.71
	Pyraclostrobin	84.1	80.2 81.6			1.74

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Sucralose	105	71.3	65.1			7.89
	Sucralose	88.0	46.4	49.1			4.17
	Triclopyr	105	78.2	78.0			0.270
SM 2320 B-97	Total Alkalinity	101				1.95	
SM 4500 F-C-97	Fluoride	95.3	94.7	96.2			0.953
SM 5310 B-00	Organic Carbon	94.2	92.0	91.3			0.735

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1986040, 1986041, 1986042
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1986043, 1986044, 1986045
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1986043, 1986044, 1986045
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1986043, 1986044, 1986045
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1986043, 1986044, 1986045
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1986046, 1986047, 1986048
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1986059, 1986060, 1986061
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1986040, 1986041, 1986042
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1986040, 1986041, 1986042
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1986040, 1986041, 1986042
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1986043, 1986044, 1986045

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	04/19/2018			04/19/2018 16:36	William L. Brown IV	1986040, 1986041, 1986042
EPA 350.1 Rev. 2.0	04/19/2018			04/24/2018 12:32	Ping Hua	1986043
	04/19/2018			04/24/2018 14:29	Ping Hua	1986044
	04/19/2018			04/24/2018 14:31	Ping Hua	1986045
EPA 351.2 Rev. 2.0	04/19/2018	04/23/2018 11:15	Adrian Shelby	04/24/2018 12:13	Joseph Suarez	1986043
	04/19/2018	04/23/2018 11:15	Adrian Shelby	04/24/2018 12:14	Joseph Suarez	1986044
	04/19/2018	04/23/2018 11:15	Adrian Shelby	04/24/2018 12:16	Joseph Suarez	1986045
EPA 353.2 Rev. 2.0	04/19/2018			04/20/2018 11:31	Lauren Bottorf	1986043
	04/19/2018			04/20/2018 11:37	Lauren Bottorf	1986044
	04/19/2018			04/20/2018 11:38	Lauren Bottorf	1986045
EPA 365.1 Rev. 2.0	04/19/2018	04/23/2018 13:56	Sima Feizi	04/24/2018 11:50	Beverly Y. Sanders	1986043
	04/19/2018	04/23/2018 13:56	Sima Feizi	04/24/2018 12:01	Beverly Y. Sanders	1986044
	04/19/2018	04/23/2018 13:56	Sima Feizi	04/24/2018 12:02	Beverly Y. Sanders	1986045
EPA 365.1 Rev. 2.0 dissolved	04/19/2018			04/19/2018 16:15	Megan Treadwell	1986046
	04/19/2018			04/19/2018 16:16	Megan Treadwell	1986048
	04/19/2018			04/19/2018 16:22	Megan Treadwell	1986047
EPA 8321B	04/19/2018	04/19/2018 12:30	Hoor Shaik	04/19/2018 22:39	S. M. Reddy	1986059
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/04/2018 06:14	Juyoung Kim	1986059
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/04/2018 06:49	Juyoung Kim	1986060
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/04/2018 07:24	Juyoung Kim	1986061
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/06/2018 12:26	Juyoung Kim	1986059
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/06/2018 13:35	Juyoung Kim	1986060
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/06/2018 14:09	Juyoung Kim	1986061
	04/19/2018	04/24/2018 15:30	Juyoung Kim	04/24/2018 19:02	Juyoung Kim	1986060
	04/19/2018	04/24/2018 15:30	Juyoung Kim	04/24/2018 20:36	Juyoung Kim	1986061
SM 2320 B-97	04/19/2018			04/27/2018 00:02	Dale L. Simmons	1986041
	04/19/2018			04/27/2018 00:22	Dale L. Simmons	1986040
	04/19/2018			04/27/2018 00:31	Dale L. Simmons	1986042
SM 2540 D-97	04/19/2018			04/20/2018 18:00	William L. Brown IV	1986040, 1986041, 1986042
SM 4500 F-C-97	04/19/2018			04/26/2018 22:12	Dale L. Simmons	1986041
	04/19/2018			04/26/2018 22:26	Dale L. Simmons	1986040
	04/19/2018			04/26/2018 22:30	Dale L. Simmons	1986042
SM 5310 B-00	04/19/2018			04/24/2018 11:26	Megan Treadwell	1986043
	04/19/2018			04/24/2018 11:46	Megan Treadwell	1986044
	04/19/2018			04/24/2018 12:00	Megan Treadwell	1986045