

Chemical Analysis Report

SW-DIST-2018-03-20-01

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-2018-03-19-07**
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: Colin Wright, Program Administrator

Date Certified: 11-APR-2018 09:45

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed 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: RICE @ BALM RVRVIEW

Collection Date/Time: 03/19/2018 11:15

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975983	EPA 8321B	2,4-D	0.0035	I	ug/L	P341805	
		Sucralose**	2.9		ug/L	P341684	
		Bentazon	0.056		ug/L	P341805	MS
		MCP	0.0031	I	ug/L	P341805	
		Triclopyr**	0.0040	U	ug/L	P341805	
		Imidacloprid	0.0065	I	ug/L	P342060	MS
		Diuron	0.14		ug/L	P342060	
		Pyraclostrobin**	0.0020	U	ug/L	P342060	
		Primidone**	0.034		ug/L	P342060	
		Linuron	0.0040	U	ug/L	P342060	
		Acetaminophen**	0.0080	U	ug/L	P342060	
		Fenuron	0.078		ug/L	P342060	
		Imazapyr**	0.13		ug/L	P342060	
		Carbamazepine**	0.010		ug/L	P342060	
		Fluridone**	0.0041		ug/L	P342060	

Ref. Method and Comment:

EPA 8321B: MS accuracy and precision for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: SIMS BRANCH @ PORT REDWING

Collection Date/Time: 03/19/2018 10:05

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975959	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P341854	
	SM 2320 B-97	Total Alkalinity	130	A	mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	4	I	mg/L	P342388	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P342288	
1975962	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P342523	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P341982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P341909	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P342033	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P342277	
1975965	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P341872	

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: 03/19/2018 09:20

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975960	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P341854	
	SM 2320 B-97	Total Alkalinity	274		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	10		mg/L	P342388	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P342288	
1975963	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P342523	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P341982	

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975963	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P341909	
	EPA 365.1 Rev. 2.0	Total-P	0.90		mg P/L	P342033	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342277	
1975966	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.77		mg P/L	P341872	

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: 03/19/2018 09:20

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975984	EPA 8321B	2,4-D	0.039		ug/L	P341805	
		Sucralose**	2.0		ug/L	P341684	
		Bentazon	0.0075		ug/L	P341805	MS
		MCP	0.019		ug/L	P341805	
		Triclopyr**	0.0040	U	ug/L	P341805	
		Imidacloprid	0.022		ug/L	P341805	MS
		Diuron	0.0033	I	ug/L	P341805	
		Pyraclostrobin**	0.0020	U	ug/L	P341805	
		Primidone**	0.0044	I	ug/L	P341805	
		Linuron	0.0040	U	ug/L	P341805	
		Acetaminophen**	0.50		ug/L	P341805	
		Fenuron	0.016	U	ug/L	P341805	
		Imazapyr**	0.017		ug/L	P341805	MS
		Carbamazepine**	0.0050		ug/L	P341805	
		Fluridone**	8.0E-04	U	ug/L	P341805	

Ref. Method and Comment:

EPA 8321B: MS accuracy and precision for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample. Fenuron was detected in the method blank slightly above the MDL.

**Sample Location: WOLF BRANCH CANAL @ MANNS HARBOR
DR BOATLIFT**

Collection Date/Time: 03/19/2018 10:40

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975961	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P341854	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	4	I	mg/L	P342388	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P342287	
1975964	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P342523	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P341982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P341909	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P342111	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P342277	
1975967	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.094		mg P/L	P341872	

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 @ MANNS HARBOR **Collection Date/Time: 03/19/2018 10:40**
DR BOATLIFT

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975985	EPA 8321B	2,4-D	0.0044	I	ug/L	P341805	
		Sucralose**	1.1		ug/L	P341684	
		Bentazon	0.0045		ug/L	P341805	MS
		MCP	0.0020	U	ug/L	P341805	
		Triclopyr**	0.0040	U	ug/L	P341805	
		Imidacloprid	0.0020	U	ug/L	P341805	MS
		Diuron	0.0020	U	ug/L	P341805	
		Pyraclostrobin**	0.0020	U	ug/L	P341805	
		Primidone**	0.0048	I	ug/L	P341805	
		Linuron	0.0040	U	ug/L	P341805	
		Acetaminophen**	0.0080	U	ug/L	P341805	
		Fenuron	0.016	U	ug/L	P341805	
		Imazapyr**	0.0040	U	ug/L	P341805	MS
		Carbamazepine**	0.0016	I	ug/L	P341805	
		Fluridone**	0.0029	I	ug/L	P341805	

Ref. Method and Comment:

EPA 8321B: MS accuracy and precision for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample. Fenuron was detected in the method blank slightly above the MDL.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P341854

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P342523

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P341982

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P341909

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P342033

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342033

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342111

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341872

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

Reference Method: EPA 8321B
Batch ID: P341684

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P341805

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	0.018	I	ug/L
Fluridone	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: P342060

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0040	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342060

Component	Result	Code	Units
Pyraclostrobin	0.0020	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P342151

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

Reference Method: SM 2540 D-97
Batch ID: P342388

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P342287

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342277

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: P342523

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341909

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341909

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: P342033

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342111

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: P341872

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

Reference Method: EPA 8321B
Batch ID: P341684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	115		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P341805

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	80.4		P	40 - 150
Acetaminophen	100		P	30 - 150
Bentazon	74.9		P	30 - 150
Carbamazepine	68.5		P	40 - 150
Diuron	69.1		P	40 - 150
Fenuron	106		P	40 - 150
Fluridone	62.5		P	40 - 150
Imazapyr	61.0		P	40 - 150
Imidacloprid	91.2		P	40 - 160
Linuron	71.4		P	40 - 150
MCP	82.0		P	40 - 150
Primidone	97.7		P	40 - 150
Pyraclostrobin	62.8		P	40 - 150
Triclopyr	73.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	102		P	30 - 150
Carbamazepine	63.9		P	40 - 150
Diuron	62.3		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P342060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	112		P	40 - 150
Fluridone	56.9		P	40 - 150
Imazapyr	73.3		P	40 - 150
Imidacloprid	95.8		P	40 - 160
Linuron	76.5		P	40 - 150
Primidone	107		P	40 - 150
Pyraclostrobin	67.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P342151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342287

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

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975923	Ammonia-N	99.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975962	Kjeldahl Nitrogen	101	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341909

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975920	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975962	Total-P	94.8	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976600	Total-P	97.3	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P341872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975967	O-Phosphate-P	98.9	99.8	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P341684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975318	Sucralose	110	97.2	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P341805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976131	Acetaminophen	128	128	P/P	30 - 150
1976131	Bentazon	21.6	20.0	F/F	30 - 150
1976131	Carbamazepine	87.3	74.3	P/P	40 - 150
1976131	Diuron	62.6	61.2	P/P	40 - 150
1976131	Fenuron	93.7	95.2	P/P	40 - 150
1976131	Fluridone	47.8	46.5	P/P	40 - 150
1976131	Imazapyr	38.5	53.0	F/P	40 - 150
1976131	Imidacloprid	179	179	F/F	40 - 160
1976131	Linuron	69.0	75.2	P/P	40 - 150
1976131	MCP	53.2	52.8	P/P	40 - 150
1976131	Primidone	110	113	P/P	40 - 150
1976131	Pyraclostrobin	61.0	52.7	P/P	40 - 150
1976131	Triclopyr	46.8	42.5	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P342060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976869	Acetaminophen	127	122	P/P	30 - 150
1976869	Carbamazepine	76.4	71.8	P/P	40 - 150
1976869	Diuron	69.4	72.3	P/P	40 - 150
1976869	Fenuron	96.0	86.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P342060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976869	Fluridone	58.0	59.2	P/P	40 - 150
1976869	Imazapyr	46.7	57.6	P/P	40 - 150
1976869	Imidacloprid	192	196	F/F	40 - 160
1976869	Linuron	80.5	85.5	P/P	40 - 150
1976869	Primidone	115	111	P/P	40 - 150
1976869	Pyraclostrobin	70.9	70.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P342287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975961	Fluoride	92.7	93.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975351	Fluoride	93.9	94.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975140	Organic Carbon	103	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975868	Turbidity	0.844	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975923	Ammonia-N	2.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975962	Kjeldahl Nitrogen	4.43	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975920	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975962	Total-P	2.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976600	Total-P	2.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P341872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975967	O-Phosphate-P	0.465	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P341684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975318	Sucralose	9.71	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P341805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976131	Acetaminophen	0.0564	Spike	P	0 - 30
1976131	Bentazon	5.65	Spike	P	0 - 30
1976131	Carbamazepine	15.9	Spike	P	0 - 30
1976131	Diuron	2.07	Spike	P	0 - 30
1976131	Fenuron	1.56	Spike	P	0 - 30
1976131	Fluridone	2.41	Spike	P	0 - 30
1976131	Imazapyr	15.0	Spike	P	0 - 30
1976131	Imidacloprid	0.0	Spike	P	0 - 30
1976131	Linuron	8.54	Spike	P	0 - 30
1976131	MCP	0.734	Spike	P	0 - 30
1976131	Primidone	2.60	Spike	P	0 - 30
1976131	Pyraclostrobin	14.5	Spike	P	0 - 30
1976131	Triclopyr	9.72	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P342060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976869	Acetaminophen	3.77	Spike	P	0 - 30
1976869	Carbamazepine	6.26	Spike	P	0 - 30
1976869	Diuron	4.12	Spike	P	0 - 30
1976869	Fenuron	10.7	Spike	P	0 - 30
1976869	Fluridone	2.03	Spike	P	0 - 30
1976869	Imazapyr	15.2	Spike	P	0 - 30
1976869	Imidacloprid	1.96	Spike	P	0 - 30
1976869	Linuron	6.00	Spike	P	0 - 30
1976869	Primidone	3.27	Spike	P	0 - 30
1976869	Pyraclostrobin	1.21	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P342151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975959	Total Alkalinity	0.163	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P342287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975961	Fluoride	0.513	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975351	Fluoride	0.474	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975140	Organic Carbon	1.98	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: 1975983
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1975983
 Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	116	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.8	P	30 - 160
EPA 8321B	Diuron-d6	83.6	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Lab Sample ID: 1975984
 Field Sample ID: G1SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	71.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	64.0	P	30 - 160
EPA 8321B	Diuron-d6	55.0	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	109	P	40 - 160

Lab Sample ID: 1975985
 Field Sample ID: G1SW0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	60.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.0	P	30 - 160
EPA 8321B	Diuron-d6	66.6	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A82739
 Included Lab Sample IDs: 1975959, 1975960, 1975961

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A82742
 Included Lab Sample IDs: 1975965, 1975966, 1975967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	102	102	P/P	90 - 110
O-Phosphate-P	99.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82753

Included Lab Sample IDs: 1975962, 1975963, 1975964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82809

Included Lab Sample IDs: 1975962, 1975963, 1975964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82813

Included Lab Sample IDs: 1975962, 1975963

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

Reference Method: SM 2320 B-97

Run ID: A82826

Included Lab Sample IDs: 1975959, 1975960, 1975961

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	99.2	P/P	90 - 110
Total Alkalinity	99.2	97.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82866

Included Lab Sample IDs: 1975983, 1975984, 1975985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.9	93.5	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82870

Included Lab Sample IDs: 1975964

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

Reference Method: SM 5310 B-00

Run ID: A82877

Included Lab Sample IDs: 1975962, 1975963, 1975964

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

Reference Method: SM 4500 F-C-97

Run ID: A82882

Included Lab Sample IDs: 1975959, 1975960, 1975961

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

Reference Method: SM 4500 F-C-97

Run ID: A82882

Included Lab Sample IDs: 1975959, 1975960, 1975961

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.6	P/P	90 - 110
Fluoride	99.1	98.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82884

Included Lab Sample IDs: 1975983, 1975984, 1975985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	105	P/P	50 - 150
Acetaminophen	104	113	P/P	60 - 150
Acetaminophen	112	102	P/P	60 - 150
Bentazon	99.6	93.6	P/P	50 - 150
Carbamazepine	100	111	P/P	60 - 150
Carbamazepine	85.5	92.8	P/P	60 - 150
Diuron	110	116	P/P	60 - 150
Diuron	112	121	P/P	60 - 150
Fenuron	103	98.3	P/P	60 - 150
Fenuron	100	99.6	P/P	60 - 150
Fluridone	109	108	P/P	60 - 160
Fluridone	111	113	P/P	60 - 160
Imazapyr	91.6	80.6	P/P	50 - 150
Imazapyr	98.3	98.8	P/P	50 - 150
Imidacloprid	103	97.5	P/P	60 - 150
Imidacloprid	113	109	P/P	60 - 150
Linuron	114	119	P/P	60 - 150
Linuron	116	118	P/P	60 - 150
MCPP	110	96.8	P/P	50 - 150
Primidone	104	99.1	P/P	60 - 150
Primidone	110	94.8	P/P	60 - 150
Pyraclostrobin	98.5	102	P/P	60 - 150
Pyraclostrobin	98.7	100	P/P	60 - 150
Triclopyr	106	93.7	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82966

Included Lab Sample IDs: 1975962, 1975963, 1975964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	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	Precision	MS
				LCS	SMP
EPA 180.1 Rev. 2.0	Turbidity			0.844	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	99.0	102		2.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	101	95.9		4.43
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	103	103		0.0
EPA 365.1 Rev. 2.0	Total-P	99.2	94.8	97.2		2.15
	Total-P	101	97.3	94.7		2.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.9	99.8		0.465
EPA 8321B	2,4-D	80.4				
	Acetaminophen	100	128	128		0.0564
	Acetaminophen	102	127	122		3.77
	Bentazon	74.9	21.6	20.0		5.65
	Carbamazepine	68.5	87.3	74.3		15.9
	Carbamazepine	63.9	76.4	71.8		6.26
	Diuron	69.1	62.6	61.2		2.07
	Diuron	62.3	69.4	72.3		4.12
	Fenuron	106	93.7	95.2		1.56
	Fenuron	112	96.0	86.2		10.7
	Fluridone	62.5	47.8	46.5		2.41
	Fluridone	56.9	58.0	59.2		2.03
	Imazapyr	61.0	38.5	53.0		15.0
	Imazapyr	73.3	46.7	57.6		15.2
	Imidacloprid	91.2	179	179		0.0
	Imidacloprid	95.8	192	196		1.96
	Linuron	71.4	69.0	75.2		8.54
	Linuron	76.5	80.5	85.5		6.00
	MCPP	82.0	53.2	52.8		0.734
	Primidone	97.7	110	113		2.60
	Primidone	107	115	111		3.27
	Pyraclostrobin	62.8	61.0	52.7		14.5
	Pyraclostrobin	67.4	70.9	70.0		1.21
	Sucralose	115	110	97.2		9.71
	Triclopyr	73.5	46.8	42.5		9.72
SM 2320 B-97	Total Alkalinity	105			0.163	
SM 4500 F-C-97	Fluoride	95.9	92.7	93.4		0.513
	Fluoride	98.2	93.9	94.4		0.474
SM 5310 B-00	Organic Carbon	106	103	105		1.98

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1975959, 1975960, 1975961
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1975962, 1975963, 1975964
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1975962, 1975963, 1975964
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1975962, 1975963, 1975964
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1975962, 1975963, 1975964
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1975965, 1975966, 1975967
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1975983, 1975984, 1975985
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1975983, 1975984, 1975985
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1975959, 1975960, 1975961

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1975959, 1975960, 1975961
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1975959, 1975960, 1975961
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1975962, 1975963, 1975964

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	03/20/2018			03/20/2018 15:18	DeAsia Armster	1975959, 1975960, 1975961
EPA 350.1 Rev. 2.0	03/20/2018			03/30/2018	Ping Hua	1975962, 1975963, 1975964
EPA 351.2 Rev. 2.0	03/20/2018	03/22/2018	Adrian Shelby	03/23/2018	Joseph Suarez	1975962, 1975963, 1975964
EPA 353.2 Rev. 2.0	03/20/2018			03/21/2018	Beverly Y. Sanders	1975962, 1975963, 1975964
EPA 365.1 Rev. 2.0	03/20/2018	03/22/2018	Sima Feizi	03/23/2018	Lipi Saha	1975962, 1975963
	03/20/2018	03/23/2018	Sima Feizi	03/27/2018	Beverly Y. Sanders	1975964
EPA 365.1 Rev. 2.0 dissolved	03/20/2018			03/20/2018 15:29	Megan Treadwell	1975967
	03/20/2018			03/20/2018 15:41	Megan Treadwell	1975965
	03/20/2018			03/20/2018 16:04	Megan Treadwell	1975966
EPA 8321B	03/20/2018	03/22/2018	Hoor Shaik	03/23/2018	Julie Michelle Frank	1975983, 1975984, 1975985
	03/20/2018	03/22/2018	Hoor Shaik	03/25/2018	Julie Michelle Frank	1975983
	03/20/2018	03/23/2018	Hoor Shaik	03/25/2018	Julie Michelle Frank	1975983
	03/20/2018	03/26/2018	Julie Michelle Frank	03/27/2018	Juyoung Kim	1975983, 1975984, 1975985
SM 2320 B-97	03/20/2018			03/23/2018	Dale L. Simmons	1975959
	03/20/2018			03/24/2018	Dale L. Simmons	1975960, 1975961
SM 2540 D-97	03/20/2018			03/21/2018	Yijie Li	1975959, 1975960, 1975961
SM 4500 F-C-97	03/20/2018			03/26/2018	Dale L. Simmons	1975959, 1975960, 1975961
SM 5310 B-00	03/20/2018			03/27/2018	Julia Storbeck	1975962, 1975963, 1975964