

Chemical Analysis Report

SW-DIST-2018-12-28-01

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

Event Description: **Rattlesnake**
Request ID: **RQ-2018-12-24-32**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 10-JAN-2019 15:40



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 group are included in this report: 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: Rattlesnake Slough @ Linden

Collection Date/Time: 12/27/2018 10:30

Field ID: G2SW0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2051193	EPA 8321B	2,4-D	0.0094		ug/L	P356618	
		Sucralose**	0.64		ug/L	P356716	
		Bentazon	0.012		ug/L	P356618	MS
		MCP	0.0020	I	ug/L	P356618	
		Triclopyr**	0.0040	U	ug/L	P356618	
		Imidacloprid	0.029		ug/L	P356618	
		Diuron	0.0020	U	ug/L	P356618	MS
		Pyraclostrobin**	0.0020	U	ug/L	P356618	
		Primidone**	0.0040	U	ug/L	P356618	
		Linuron	0.0040	U	ug/L	P356618	MS
		Acetaminophen**	0.0080	U	ug/L	P356618	
		Fenuron	0.016	U	ug/L	P356618	
		Imazapyr**	0.74		ug/L	P356618	
		Carbamazepine**	8.0E-04	U	ug/L	P356618	
		Fluridone**	0.033		ug/L	P356618	
		Hydrocodone**	8.0E-04	U	ug/L	P356618	
		Naproxen**	0.0080	U	ug/L	P356618	MS
		Ibuprofen**	0.020	U	ug/L	P356618	
		Glyphosate**	1.5		ug/L	P356716	
		AMPA**	0.66		ug/L	P356716	
		Endothall**	0.25	U	ug/L	P356716	
		Glufosinate**	0.10	U	ug/L	P356716	
		Acesulfame K**	0.25	I	ug/L	P356716	

Sample Location: Rattlesnake Slough @ Lockwood ridge Rd

Collection Date/Time: 12/27/2018 10:20

Field ID: G2SW0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2051194	EPA 8321B	2,4-D	0.0079	I	ug/L	P356618	
		Sucralose**	0.29		ug/L	P356716	
		Bentazon	0.033		ug/L	P356618	MS
		MCP	0.0024	I	ug/L	P356618	
		Triclopyr**	0.0040	U	ug/L	P356618	
		Imidacloprid	0.10		ug/L	P356618	
		Diuron	0.0020	U	ug/L	P356618	MS
		Pyraclostrobin**	0.0020	U	ug/L	P356618	
		Primidone**	0.0040	U	ug/L	P356618	
		Linuron	0.0040	U	ug/L	P356618	MS
		Acetaminophen**	0.0080	U	ug/L	P356618	
		Fenuron	0.031	I	ug/L	P356618	
		Imazapyr**	0.86		ug/L	P356618	
		Carbamazepine**	8.0E-04	U	ug/L	P356618	
		Fluridone**	0.046		ug/L	P356618	
		Hydrocodone**	8.0E-04	U	ug/L	P356618	
		Naproxen**	0.0080	U	ug/L	P356618	MS
		Ibuprofen**	0.020	U	ug/L	P356618	
		Glyphosate**	2.2		ug/L	P356716	
		AMPA**	2.5		ug/L	P356716	
		Endothall**	0.25	U	ug/L	P356716	
		Glufosinate**	0.10	U	ug/L	P356716	
		Acesulfame K**	0.10	U	ug/L	P356716	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P356618

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	8.0E-04	U	ug/L
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
Ibuprofen	0.020	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
Naproxen	0.0080	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: P356716

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P356618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	103		P	40 - 150
Acetaminophen	60.9		P	30 - 150
Bentazon	44.0		P	30 - 150
Carbamazepine	53.2		P	40 - 150
Diuron	43.9		P	40 - 150
Fenuron	92.9		P	40 - 150
Fluridone	89.9		P	40 - 150
Hydrocodone	66.8		P	40 - 150
Ibuprofen	50.6		P	40 - 150
Imazapyr	61.0		P	40 - 150
Imidacloprid	78.4		P	40 - 160
Linuron	45.3		P	40 - 150
MCPP	136		P	40 - 150
Naproxen	55.9		P	40 - 150
Primidone	70.1		P	40 - 150
Pyraclostrobin	62.0		P	40 - 150
Triclopyr	72.6		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P356716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	107		P	40 - 150
AMPA	82.6		P	40 - 150
Endothall	76.7		P	40 - 150
Glufosinate	126		P	40 - 150
Glyphosate	126		P	40 - 140
Sucralose	104		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P356618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050938	2,4-D	77.5	64.5	P/P	40 - 150
2050938	Acetaminophen	75.5	65.8	P/P	30 - 150
2050938	Bentazon	29.7	22.7	F/F	30 - 150
2050938	Carbamazepine	47.1	41.1	P/P	40 - 150
2050938	Diuron	40.9	35.2	P/F	40 - 150
2050938	Fenuron	59.2	59.5	P/P	40 - 150
2050938	Fluridone	85.7	73.3	P/P	40 - 150
2050938	Hydrocodone	46.4	48.2	P/P	40 - 150
2050938	Ibuprofen	49.9	49.6	P/P	40 - 150
2050938	Imazapyr	62.1	52.1	P/P	40 - 150
2050938	Imidacloprid	88.9	78.6	P/P	40 - 160
2050938	Linuron	41.9	35.3	P/F	40 - 150
2050938	MCPP	114	91.9	P/P	40 - 150
2050938	Naproxen	42.0	39.6	P/F	40 - 150
2050938	Primidone	59.3	49.8	P/P	40 - 150
2050938	Pyraclostrobin	63.8	56.7	P/P	40 - 150
2050938	Triclopyr	61.7	47.2	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P356716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050938	Acesulfame K	92.9	87.1	P/P	40 - 150
2050938	AMPA	80.4	73.3	P/P	40 - 150
2050938	Endothall	124	130	P/P	40 - 150
2050938	Glufosinate	86.1	97.0	P/P	40 - 150
2050938	Glyphosate	99.2	101	P/P	40 - 140
2050938	Sucralose	109	115	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P356618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050938	2,4-D	12.4	Spike	P	0 - 30
2050938	Acetaminophen	13.8	Spike	P	0 - 30
2050938	Bentazon	11.7	Spike	P	0 - 30
2050938	Carbamazepine	13.5	Spike	P	0 - 30
2050938	Diuron	15.0	Spike	P	0 - 30
2050938	Fenuron	0.531	Spike	P	0 - 30
2050938	Fluridone	15.4	Spike	P	0 - 30
2050938	Hydrocodone	3.90	Spike	P	0 - 30
2050938	Ibuprofen	0.525	Spike	P	0 - 30
2050938	Imazapyr	10.2	Spike	P	0 - 30
2050938	Imidacloprid	12.4	Spike	P	0 - 30
2050938	Linuron	17.1	Spike	P	0 - 30
2050938	MCP	17.9	Spike	P	0 - 30
2050938	Naproxen	4.58	Spike	P	0 - 30
2050938	Primidone	17.3	Spike	P	0 - 30
2050938	Pyraclostrobin	11.8	Spike	P	0 - 30
2050938	Triclopyr	19.0	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P356716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050938	Acesulfame K	6.45	Spike	P	0 - 30
2050938	AMPA	9.17	Spike	P	0 - 30
2050938	Endothall	4.85	Spike	P	0 - 30
2050938	Glufosinate	11.9	Spike	P	0 - 30
2050938	Glyphosate	1.89	Spike	P	0 - 30
2050938	Sucralose	4.80	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2051193
Field Sample ID: G2SW0017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	99.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	80.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	45.8	P	30 - 160
EPA 8321B	Diuron-d6	41.5	P	30 - 160
EPA 8321B	Endothall-d6	64.1	P	40 - 160
EPA 8321B	Endothall-d6	64.1	P	40 - 160
EPA 8321B	Endothall-d6	64.1	P	40 - 160
EPA 8321B	Endothall-d6	64.1	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	81.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	81.4	P	40 - 160
EPA 8321B	Ibuprofen-d3	72.4	P	60 - 160
EPA 8321B	Primidone-d5	65.1	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	40 - 160
EPA 8321B	Sucralose-d6	101	P	40 - 160

Lab Sample ID: 2051194
Field Sample ID: G2SW0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	47.7	P	30 - 160
EPA 8321B	Diuron-d6	38.0	P	30 - 160
EPA 8321B	Endothall-d6	66.7	P	40 - 160
EPA 8321B	Endothall-d6	66.7	P	40 - 160
EPA 8321B	Endothall-d6	66.7	P	40 - 160
EPA 8321B	Endothall-d6	66.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	72.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	72.8	P	40 - 160
EPA 8321B	Ibuprofen-d3	71.9	P	60 - 160
EPA 8321B	Primidone-d5	63.4	P	30 - 160
EPA 8321B	Sucralose-d6	99.5	P	40 - 160
EPA 8321B	Sucralose-d6	99.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A88589

Included Lab Sample IDs: 2051193, 2051194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	144	124	P/P	60 - 160
Endothall	141	72.9	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A88606

Included Lab Sample IDs: 2051193, 2051194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	111	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A88608

Included Lab Sample IDs: 2051193, 2051194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	72.2	75.4	P/P	60 - 160
Glufosinate	110	118	P/P	60 - 160
Glyphosate	115	134	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A88636

Included Lab Sample IDs: 2051193, 2051194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	80.9	77.0	P/P	50 - 150
Acetaminophen	92.8	93.6	P/P	60 - 160
Bentazon	91.6	94.8	P/P	50 - 160
Carbamazepine	102	100	P/P	60 - 150
Diuron	121	116	P/P	60 - 150
Fenuron	114	113	P/P	60 - 150
Fluridone	113	113	P/P	60 - 160
Hydrocodone	96.0	93.4	P/P	60 - 150
Ibuprofen	85.8	97.5	P/P	50 - 160
Imazapyr	78.6	82.6	P/P	50 - 150
Imidacloprid	88.9	87.0	P/P	60 - 150
Linuron	98.9	100	P/P	60 - 150
MCPP	89.6	85.7	P/P	50 - 150
Naproxen	61.9	102	P/P	50 - 160
Primidone	95.4	109	P/P	60 - 150
Pyraclostrobin	96.8	93.5	P/P	60 - 150
Triclopyr	90.6	88.2	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 8321B	2,4-D	103	77.5	64.5			12.4
	Acesulfame K	107	92.9	87.1			6.45
	Acetaminophen	60.9	75.5	65.8			13.8
	AMPA	82.6	80.4	73.3			9.17
	Bentazon	44.0	29.7	22.7			11.7
	Carbamazepine	53.2	47.1	41.1			13.5
	Diuron	43.9	40.9	35.2			15.0
	Endothall	76.7	124	130			4.85
	Fenuron	92.9	59.2	59.5			0.531
	Fluridone	89.9	85.7	73.3			15.4
	Glufosinate	126	86.1	97.0			11.9
	Glyphosate	126	99.2	101			1.89
	Hydrocodone	66.8	46.4	48.2			3.90
	Ibuprofen	50.6	49.9	49.6			0.525
	Imazapyr	61.0	62.1	52.1			10.2
	Imidacloprid	78.4	88.9	78.6			12.4
	Linuron	45.3	41.9	35.3			17.1
	MCPP	136	114	91.9			17.9
	Naproxen	55.9	42.0	39.6			4.58
	Primidone	70.1	59.3	49.8			17.3
	Pyraclostrobin	62.0	63.8	56.7			11.8
	Sucralose	104	109	115			4.80
	Triclopyr	72.6	61.7	47.2			19.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2051193, 2051194
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2051193, 2051194

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/02/2019 11:07	Rebecca Ware	2051193
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/02/2019 11:17	Rebecca Ware	2051194
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/02/2019 14:09	Rebecca Ware	2051193
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/02/2019 14:23	Rebecca Ware	2051194
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/03/2019 03:22	Rebecca Ware	2051193
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/03/2019 03:36	Rebecca Ware	2051194
	12/28/2018	01/02/2019 13:30	Juyoung Kim	01/04/2019 08:27	Juyoung Kim	2051193
	12/28/2018	01/02/2019 13:30	Juyoung Kim	01/04/2019 09:01	Juyoung Kim	2051194