

Chemical Analysis Report

SW-DIST-2020-10-21-01

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

Event Description: **Klosterman**
Request ID: **RQ-2020-10-05-66**
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: Judy Ashton

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 30-OCT-2020 14:30

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 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 by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Klosterman Creek, Innisbrook Golf Course

Collection Date/Time: 10/20/2020 08:58

Field ID: G5SW0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2203941	EPA 8321B	2,4-D	0.036		ug/L	P389104	
		Acesulfame K**	0.10	U	ug/L	P389065	MS
		AMPA**	0.54		ug/L	P389065	
		Sucralose**	4.1		ug/L	P389065	
		Acetaminophen**	0.0080	U	ug/L	P389104	
		Acetamiprid**	0.0020	U	ug/L	P389104	
		Endothall**	0.25	U	ug/L	P389065	
		Glufosinate**	0.10	U	ug/L	P389065	
		Glyphosate**	0.52		ug/L	P389065	
		Afidopyropen**	0.0020	U	ug/L	P389104	
		Bentazon	0.18		ug/L	P389104	
		Benzovindiflupyr**	0.0020	U	ug/L	P389104	
		Carbamazepine**	0.0065		ug/L	P389104	
		Clothianidin**	0.0096		ug/L	P389104	
		Dinotefuran**	0.0044	I	ug/L	P389104	
		Diuron	0.0020	U	ug/L	P389104	
		Fenuron	0.016	U	ug/L	P389104	
		Fluridone**	0.0072		ug/L	P389104	
		Imazapyr**	0.026		ug/L	P389104	
		Hydrocodone**	0.0020	U	ug/L	P389104	
		Ibuprofen**	0.020	U	ug/L	P389104	
		Imidacloprid	0.43		ug/L	P389104	
		Linuron	0.0040	U	ug/L	P389104	
		Mandestrobin**	0.0020	U	ug/L	P389104	
		MCPP	0.0085		ug/L	P389104	
		Naproxen**	0.0080	U	ug/L	P389104	
		Primidone**	0.023		ug/L	P389104	
		Pyraclostrobin**	0.0020	U	ug/L	P389104	
		Thiamethoxam**	0.0020	U	ug/L	P389104	
		Tolfenpyrad**	0.0020	U	ug/L	P389104	
		Triclopyr**	0.0040	U	ug/L	P389104	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P389065

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

Reference Method: EPA 8321B
 Batch ID: P389104

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	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
Mandestrobin	0.0020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P389065

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.7		P	40 - 150
AMPA	101		P	40 - 150
Endothall	83.7		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	95.2		P	40 - 140
Sucralose	116		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P389104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	71.8		P	30 - 160
Acetaminophen	51.6		P	30 - 160
Acetamiprid	55.2		P	30 - 160
Afidopyropen	43.0		P	30 - 160
Bentazon	53.7		P	30 - 160
Benzovindiflupyr	66.9		P	30 - 160
Carbamazepine	49.2		P	30 - 160
Clothianidin	83.6		P	30 - 160
Dinotefuran	71.2		P	30 - 160
Diuron	55.1		P	30 - 160
Fenuron	102		P	30 - 160
Fluridone	73.8		P	30 - 160
Hydrocodone	99.9		P	30 - 160
Ibuprofen	86.3		P	30 - 160
Imazapyr	100		P	30 - 160
Imidacloprid	82.2		P	30 - 160
Linuron	61.8		P	30 - 160
Mandestrobin	75.2		P	30 - 160
MCPP	74.1		P	30 - 160
Naproxen	81.1		P	30 - 160
Primidone	93.1		P	30 - 160
Pyraclostrobin	55.5		P	30 - 160
Thiamethoxam	95.5		P	30 - 160
Tolfenpyrad	53.4		P	30 - 160
Triclopyr	61.0		P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P389065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203277	Acesulfame K	27.0	27.2	F/F	40 - 150
2203277	AMPA	98.9	96.6	P/P	40 - 150
2203277	Endothall	79.5	82.6	P/P	40 - 150
2203277	Glufosinate	91.9	89.7	P/P	40 - 150
2203277	Glyphosate	82.4	75.2	P/P	40 - 140
2203277	Sucralose	113	100	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P389104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203654	2,4-D	78.3	68.1	P/P	30 - 160
2203654	Acetaminophen	64.4	64.2	P/P	30 - 160
2203654	Acetamiprid	67.5	61.5	P/P	30 - 160
2203654	Afidopyropen	49.5	42.6	P/P	30 - 160
2203654	Bentazon	50.8	45.7	P/P	30 - 160
2203654	Benzovindiflupyr	66.5	68.4	P/P	30 - 160
2203654	Carbamazepine	59.8	55.9	P/P	30 - 160
2203654	Clothianidin	92.2	83.9	P/P	30 - 160
2203654	Dinotefuran	80.8	76.1	P/P	30 - 160
2203654	Diuron	54.4	53.1	P/P	30 - 160
2203654	Fenuron	38.5	40.5	P/P	30 - 160
2203654	Fluridone	70.5	80.0	P/P	30 - 160
2203654	Hydrocodone	112	113	P/P	30 - 160
2203654	Ibuprofen	75.3	74.9	P/P	30 - 160
2203654	Imazapyr	108	101	P/P	30 - 160
2203654	Imidacloprid	99.0	103	P/P	30 - 160
2203654	Linuron	62.0	70.6	P/P	30 - 160
2203654	Mandestrobin	72.4	78.8	P/P	30 - 160
2203654	MCP	91.1	92.8	P/P	30 - 160
2203654	Naproxen	66.7	56.6	P/P	30 - 160
2203654	Primidone	86.9	87.3	P/P	30 - 160
2203654	Pyraclostrobin	59.8	63.4	P/P	30 - 160
2203654	Thiamethoxam	93.0	117	P/P	30 - 160
2203654	Tolfenpyrad	53.7	54.2	P/P	30 - 160
2203654	Triclopyr	69.6	66.8	P/P	30 - 160

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P389065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203277	Acesulfame K	0.737	Spike	P	0 - 30
2203277	AMPA	2.38	Spike	P	0 - 30
2203277	Endothall	3.88	Spike	P	0 - 30
2203277	Glufosinate	2.45	Spike	P	0 - 30
2203277	Glyphosate	9.13	Spike	P	0 - 30
2203277	Sucralose	12.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P389104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203654	2,4-D	14.0	Spike	P	0 - 30
2203654	Acetaminophen	0.237	Spike	P	0 - 30
2203654	Acetamiprid	9.32	Spike	P	0 - 30
2203654	Afidopyropen	15.0	Spike	P	0 - 30
2203654	Bentazon	10.6	Spike	P	0 - 30
2203654	Benzovindiflupyr	2.72	Spike	P	0 - 30
2203654	Carbamazepine	6.84	Spike	P	0 - 30
2203654	Clothianidin	9.37	Spike	P	0 - 30
2203654	Dinotefuran	5.95	Spike	P	0 - 30
2203654	Diuron	2.38	Spike	P	0 - 30
2203654	Fenuron	2.16	Spike	P	0 - 30
2203654	Fluridone	12.6	Spike	P	0 - 30
2203654	Hydrocodone	1.05	Spike	P	0 - 30
2203654	Ibuprofen	0.506	Spike	P	0 - 30
2203654	Imazapyr	6.11	Spike	P	0 - 30
2203654	Imidacloprid	3.59	Spike	P	0 - 30
2203654	Linuron	12.9	Spike	P	0 - 30
2203654	Mandestrobin	8.48	Spike	P	0 - 30
2203654	MCP	1.89	Spike	P	0 - 30
2203654	Naproxen	16.5	Spike	P	0 - 30
2203654	Primidone	0.499	Spike	P	0 - 30
2203654	Pyraclostrobin	5.85	Spike	P	0 - 30
2203654	Thiamethoxam	22.8	Spike	P	0 - 30
2203654	Tolfenpyrad	0.880	Spike	P	0 - 30
2203654	Triclopyr	4.15	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2203941

Field Sample ID: G5SW0171

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	69.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	38.3	P	30 - 160
EPA 8321B	Diuron-d6	45.6	P	30 - 160
EPA 8321B	Endothall-d6	96.1	P	30 - 160
EPA 8321B	Endothall-d6	96.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	68.4	P	30 - 160
EPA 8321B	Primidone-d5	61.3	P	30 - 160
EPA 8321B	Sucralose-d6	72.2	P	30 - 160
EPA 8321B	Sucralose-d6	72.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A101706
 Included Lab Sample IDs: 2203941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	81.0	80.3	P/P	50 - 160
Endothall	113	109	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A101728
 Included Lab Sample IDs: 2203941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	100	94.1	P/P	50 - 160
Glufosinate	100	96.7	P/P	50 - 160
Glyphosate	96.0	105	P/P	50 - 160

Reference Method: EPA 8321B
 Run ID: A101788
 Included Lab Sample IDs: 2203941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	116	P/P	50 - 160

Reference Method: EPA 8321B
 Run ID: A101797
 Included Lab Sample IDs: 2203941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	91.4	P/P	50 - 150
Acetaminophen	112	115	P/P	60 - 160
Acetamiprid	113	111	P/P	50 - 150
Afidopyropen	86.0	82.3	P/P	50 - 150
Benzovindiflupyr	107	89.0	P/P	50 - 150
Carbamazepine	79.5	71.5	P/P	60 - 150
Clothianidin	93.7	99.8	P/P	60 - 150
Dinotefuran	84.6	84.1	P/P	50 - 150
Diuron	77.1	71.0	P/P	60 - 160
Fenuron	112	103	P/P	60 - 150
Fluridone	108	93.4	P/P	60 - 160
Hydrocodone	134	120	P/P	60 - 150
Ibuprofen	96.3	123	P/P	50 - 160
Imazapyr	108	120	P/P	50 - 160
Imidacloprid	101	93.3	P/P	60 - 150
Linuron	63.8	68.6	P/P	60 - 150
Mandestrobin	98.7	94.9	P/P	50 - 150
MCP	90.9	87.4	P/P	50 - 150
Naproxen	97.7	64.4	P/P	50 - 160
Primidone	88.4	102	P/P	60 - 150
Pyraclostrobin	98.0	93.6	P/P	60 - 150
Thiamethoxam	108	109	P/P	50 - 150
Tolfenpyrad	119	110	P/P	60 - 150
Triclopyr	89.0	92.5	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A101841

Included Lab Sample IDs: 2203941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	104	84.8	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		Precision SMP	MS
			LCS			
EPA 8321B	2,4-D	71.8	78.3	68.1		14.0
	Acesulfame K	81.7	27.0	27.2		0.737
	Acetaminophen	51.6	64.4	64.2		0.237
	Acetamiprid	55.2	67.5	61.5		9.32
	Afidopyropen	43.0	49.5	42.6		15.0
	AMPA	101	98.9	96.6		2.38
	Bentazon	53.7	50.8	45.7		10.6
	Benzovindiflupyr	66.9	66.5	68.4		2.72
	Carbamazepine	49.2	59.8	55.9		6.84
	Clothianidin	83.6	92.2	83.9		9.37
	Dinotefuran	71.2	80.8	76.1		5.95
	Diuron	55.1	54.4	53.1		2.38
	Endothall	83.7	79.5	82.6		3.88
	Fenuron	102	38.5	40.5		2.16
	Fluridone	73.8	70.5	80.0		12.6
	Glufosinate	100	91.9	89.7		2.45
	Glyphosate	95.2	82.4	75.2		9.13
	Hydrocodone	99.9	112	113		1.05
	Ibuprofen	86.3	75.3	74.9		0.506
	Imazapyr	100	108	101		6.11
	Imidacloprid	82.2	99.0	103		3.59
	Linuron	61.8	62.0	70.6		12.9
	Mandestrobin	75.2	72.4	78.8		8.48
	MCPP	74.1	91.1	92.8		1.89
	Naproxen	81.1	66.7	56.6		16.5
	Primidone	93.1	86.9	87.3		0.499
	Pyraclostrobin	55.5	59.8	63.4		5.85
	Sucralose	116	113	100		12.1
	Thiamethoxam	95.5	93.0	117		22.8
	Tolfenpyrad	53.4	53.7	54.2		0.880
	Triclopyr	61.0	69.6	66.8		4.15

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2203941
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2203941

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/22/2020 17:18	Rebecca Ware	2203941
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/23/2020 13:24	Rebecca Ware	2203941
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/27/2020 10:28	Rebecca Ware	2203941
	10/21/2020	10/23/2020 12:00	Hoor Shaik	10/24/2020 08:29	Juyoung Kim	2203941
	10/21/2020	10/23/2020 12:00	Hoor Shaik	10/27/2020 21:21	Juyoung Kim	2203941