

Chemical Analysis Report

SO-DIST-2022-05-25-02

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

Event Description: **2022 SMP: Lee County Sampling - Chapel Creek**
Request ID: **RQ-2022-04-18-38**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: William Mullen

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: Liang Lin, Environmental Administrator

Date Certified: 02-JUN-2022 14:07

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: 22-7GR

Collection Date/Time: 05/24/2022 08:22

Field ID: AF24785

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329746	EPA 8321B	2,4-D	0.086		ug/L	P414328	
		Acesulfame K	0.16	I	ug/L	P414386	
		2,4,5-T	0.0040	U	ug/L	P414328	
		AMPA	0.73		ug/L	P414386	
		Acetaminophen	0.0080	U	ug/L	P414328	
		Acetamiprid	0.0020	U	ug/L	P414328	
		Endothall	0.25	U	ug/L	P414386	
		Glufosinate	0.10	U	ug/L	P414386	
		Glyphosate	3.9		ug/L	P414386	
		Afidopyropen	0.0020	U	ug/L	P414328	
		Bentazon	0.070		ug/L	P414328	
		Sucralose	0.45		ug/L	P414386	
		Benzovindiflupyr	0.0020	U	ug/L	P414328	
		Carbamazepine	8.0E-04	U	ug/L	P414328	
		Clothianidin	0.0093		ug/L	P414328	
		Dinotefuran	0.0020	U	ug/L	P414328	
		Diuron	0.0020	U	ug/L	P414328	
		Fenuron	0.032	U	ug/L	P414328	
		Fluridone	8.0E-04	U	ug/L	P414328	
		Imazapyr	0.0083	I	ug/L	P414328	
		Hydrocodone	0.0020	U	ug/L	P414328	
		Ibuprofen	0.020	U	ug/L	P414328	
		Imidacloprid	0.31		ug/L	P414328	MS
		Linuron	0.0040	U	ug/L	P414328	
		Mandestrobin	0.0020	U	ug/L	P414328	
		MCPP	0.0040	U	ug/L	P414328	
		Naproxen	0.0080	U	ug/L	P414328	
		Primidone	0.0040	U	ug/L	P414328	
		Pyraclostrobin	0.0020	U	ug/L	P414328	
		Silvex	0.0040	U	ug/L	P414328	
		Thiamethoxam	0.029		ug/L	P414328	
		Tolfenpyrad	0.0020	U	ug/L	P414328	
		Triclopyr	0.0040	U	ug/L	P414328	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P414328

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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	0.032	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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P414386

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: P414328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.1		P	40 - 150
2,4,5-T	74.9		P	40 - 150
Acetaminophen	68.4		P	30 - 150
Acetamiprid	88.6		P	40 - 150
Afidopyropen	71.8		P	30 - 150
Bentazon	119		P	30 - 150
Benzovindiflupyr	90.1		P	40 - 150
Carbamazepine	102		P	40 - 150
Clothianidin	98.0		P	40 - 150
Dinotefuran	99.6		P	40 - 150
Diuron	89.1		P	40 - 150
Fenuron	106		P	40 - 150
Fluridone	83.0		P	40 - 150
Hydrocodone	90.1		P	40 - 150
Ibuprofen	78.0		P	40 - 150
Imazapyr	99.4		P	40 - 150
Imidacloprid	96.6		P	40 - 150
Linuron	71.1		P	40 - 150
Mandestrobin	83.0		P	40 - 150
MCPP	119		P	40 - 150
Naproxen	76.0		P	40 - 150
Primidone	94.7		P	40 - 150
Pyraclostrobin	94.8		P	40 - 150
Silvex	75.0		P	40 - 150
Thiamethoxam	94.5		P	40 - 150
Tolfenpyrad	55.0		P	30 - 150
Triclopyr	88.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P414386

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	129		P	40 - 150
AMPA	97.7		P	40 - 150
Endothall	95.8		P	40 - 150
Glufosinate	97.7		P	40 - 150
Glyphosate	95.2		P	40 - 150
Sucralose	95.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P414328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2328671	2,4-D	99.7	100	P/P	40 - 150
2328671	2,4,5-T	78.7	79.5	P/P	40 - 150
2328671	Acetaminophen	104	103	P/P	30 - 150
2328671	Acetamiprid	95.9	102	P/P	40 - 150
2328671	Afidopyropen	69.6	72.7	P/P	30 - 150
2328671	Bentazon	105	105	P/P	30 - 150
2328671	Benzovindiflupyr	92.3	94.7	P/P	40 - 150
2328671	Carbamazepine	104	103	P/P	40 - 150
2328671	Clothianidin	126	122	P/P	40 - 150
2328671	Dinotefuran	141	142	P/P	40 - 150
2328671	Diuron	86.5	86.7	P/P	40 - 150
2328671	Fenuron	85.9	90.1	P/P	40 - 150
2328671	Fluridone	86.3	78.4	P/P	40 - 150
2328671	Hydrocodone	93.3	100	P/P	40 - 150
2328671	Ibuprofen	72.5	78.8	P/P	40 - 150
2328671	Imazapyr	116	119	P/P	40 - 150
2328671	Imidacloprid	160	158	F/F	40 - 150
2328671	Linuron	71.0	64.1	P/P	40 - 150
2328671	Mandestrobin	82.9	81.9	P/P	40 - 150
2328671	MCCP	133	133	P/P	40 - 150
2328671	Naproxen	77.6	72.4	P/P	40 - 150
2328671	Primidone	103	104	P/P	40 - 150
2328671	Pyraclostrobin	95.1	91.5	P/P	40 - 150
2328671	Silvex	79.4	72.0	P/P	40 - 150
2328671	Thiamethoxam	147	149	P/P	40 - 150
2328671	Tolfenpyrad	53.0	51.2	P/P	30 - 150
2328671	Triclopyr	88.3	87.7	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P414386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329414	Acesulfame K	115	90.8	P/P	40 - 150
2329414	AMPA	95.7	72.3	P/P	40 - 150
2329414	Endothall	93.7	73.5	P/P	40 - 150
2329414	Glufosinate	88.0	68.6	P/P	40 - 150
2329414	Glyphosate	85.1	68.8	P/P	40 - 150
2329414	Sucralose	96.4	73.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P414328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2328671	2,4-D	0.733	Spike	P	0 - 30
2328671	2,4,5-T	1.03	Spike	P	0 - 30
2328671	Acetaminophen	1.25	Spike	P	0 - 30
2328671	Acetamiprid	6.52	Spike	P	0 - 30
2328671	Afidopyropen	4.39	Spike	P	0 - 30
2328671	Bentazon	0.508	Spike	P	0 - 30
2328671	Benzovindiflupyr	2.55	Spike	P	0 - 30
2328671	Carbamazepine	0.940	Spike	P	0 - 30
2328671	Clothianidin	3.38	Spike	P	0 - 30
2328671	Dinotefuran	0.620	Spike	P	0 - 30
2328671	Diuron	0.270	Spike	P	0 - 30
2328671	Fenuron	4.79	Spike	P	0 - 30
2328671	Fluridone	7.57	Spike	P	0 - 30
2328671	Hydrocodone	6.98	Spike	P	0 - 30
2328671	Ibuprofen	8.29	Spike	P	0 - 30
2328671	Imazapyr	2.78	Spike	P	0 - 30
2328671	Imidacloprid	1.70	Spike	P	0 - 30
2328671	Linuron	10.2	Spike	P	0 - 30
2328671	Mandestrobin	1.19	Spike	P	0 - 30
2328671	MCP	0.234	Spike	P	0 - 30
2328671	Naproxen	6.94	Spike	P	0 - 30
2328671	Primidone	0.838	Spike	P	0 - 30
2328671	Pyraclostrobin	3.81	Spike	P	0 - 30
2328671	Silvex	9.84	Spike	P	0 - 30
2328671	Thiamethoxam	1.33	Spike	P	0 - 30
2328671	Tolfenpyrad	3.57	Spike	P	0 - 30
2328671	Triclopyr	0.661	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P414386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329414	Acesulfame K	23.5	Spike	P	0 - 30
2329414	AMPA	27.8	Spike	P	0 - 30
2329414	Endothall	24.1	Spike	P	0 - 30
2329414	Glufosinate	24.8	Spike	P	0 - 30
2329414	Glyphosate	19.8	Spike	P	0 - 30
2329414	Sucralose	23.7	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2329746

Field Sample ID: AF24785

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.3	P	30 - 160
EPA 8321B	Diuron-d6	53.7	P	30 - 160
EPA 8321B	Endothall-d6	107	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	78.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	79.2	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	134	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A112498
 Included Lab Sample IDs: 2329746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	97.0	95.2	P/P	60 - 160
Endothall	93.7	92.3	P/P	60 - 160
Glufosinate	104	99.8	P/P	60 - 160
Glyphosate	99.5	95.9	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A112499
 Included Lab Sample IDs: 2329746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	133	140	P/P	60 - 160
Sucralose	99.7	103	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A112515
 Included Lab Sample IDs: 2329746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	96.3	P/P	50 - 150
2,4,5-T	98.6	102	P/P	50 - 150
Acetaminophen	105	106	P/P	60 - 160
Acetamiprid	103	105	P/P	50 - 150
Afidopyropen	98.4	103	P/P	50 - 150
Bentazon	104	110	P/P	50 - 160
Benzovindiflupyr	110	109	P/P	50 - 150
Carbamazepine	105	102	P/P	60 - 150
Clothianidin	104	101	P/P	60 - 150
Dinotefuran	105	99.0	P/P	50 - 150
Diuron	110	116	P/P	60 - 160
Fenuron	101	99.4	P/P	60 - 150
Fluridone	109	106	P/P	60 - 160
Hydrocodone	98.6	99.2	P/P	60 - 150
Ibuprofen	102	95.9	P/P	50 - 160
Imazapyr	101	100	P/P	50 - 150
Imidacloprid	99.8	97.7	P/P	60 - 150
Linuron	102	96.5	P/P	60 - 150
Mandestrobin	107	107	P/P	50 - 150
MCPP	102	99.8	P/P	50 - 150
Naproxen	105	91.4	P/P	50 - 160
Primidone	94.8	96.5	P/P	60 - 150
Pyraclostrobin	111	110	P/P	60 - 150
Silvex	102	103	P/P	50 - 150
Thiamethoxam	101	98.1	P/P	50 - 150
Tolfenpyrad	103	101	P/P	60 - 150
Triclopyr	100	100	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 SMP	MS
			LCS	MS		
EPA 8321B	2,4-D	92.1	99.7	100		0.733
	2,4,5-T	74.9	78.7	79.5		1.03
	Acesulfame K	129	115	90.8		23.5
	Acetaminophen	68.4	104	103		1.25
	Acetamiprid	88.6	95.9	102		6.52
	Afidopyropen	71.8	69.6	72.7		4.39
	AMPA	97.7	95.7	72.3		27.8
	Bentazon	119	105	105		0.508
	Benzovindiflupyr	90.1	92.3	94.7		2.55
	Carbamazepine	102	104	103		0.940
	Clothianidin	98.0	126	122		3.38
	Dinotefuran	99.6	141	142		0.620
	Diuron	89.1	86.5	86.7		0.270
	Endothall	95.8	93.7	73.5		24.1
	Fenuron	106	85.9	90.1		4.79
	Fluridone	83.0	86.3	78.4		7.57
	Glufosinate	97.7	88.0	68.6		24.8
	Glyphosate	95.2	85.1	68.8		19.8
	Hydrocodone	90.1	93.3	100		6.98
	Ibuprofen	78.0	72.5	78.8		8.29
	Imazapyr	99.4	116	119		2.78
	Imidacloprid	96.6	160	158		1.70
	Linuron	71.1	71.0	64.1		10.2
	Mandestrobin	83.0	82.9	81.9		1.19
	MCPP	119	133	133		0.234
	Naproxen	76.0	77.6	72.4		6.94
	Primidone	94.7	103	104		0.838
	Pyraclostrobin	94.8	95.1	91.5		3.81
	Silvex	75.0	79.4	72.0		9.84
	Sucralose	95.3	96.4	73.2		23.7
	Thiamethoxam	94.5	147	149		1.33
	Tolfenpyrad	55.0	53.0	51.2		3.57
	Triclopyr	88.1	88.3	87.7		0.661

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2329746

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/25/2022	05/25/2022 15:00	June Rhew	05/28/2022 10:08	Juyoung Kim	2329746
	05/25/2022	05/26/2022 10:00	Umesh Chiluwal	05/26/2022 12:50	Umesh Chiluwal	2329746
	05/25/2022	05/26/2022 10:00	Umesh Chiluwal	05/27/2022 19:13	Umesh Chiluwal	2329746