

Chemical Analysis Report

TLH-ROC-2022-05-04-04

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

Event Description: **Run 18**
Request ID: **RQ-2022-02-21-77**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 18-MAY-2022 10:05



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: Lake Tallavanna Outlet

Collection Date/Time: 05/04/2022 11:35

Field ID: G1TLHR0164

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2324803	EPA 8321B	2,4-D	0.0020	U	ug/L	P413414	
		Acesulfame K	0.10	U	ug/L	P413413	
		2,4,5-T	0.0040	U	ug/L	P413414	
		AMPA	0.10	U	ug/L	P413413	
		Acetaminophen	0.0080	U	ug/L	P413414	
		Acetamiprid	0.0020	U	ug/L	P413414	
		Endothall	0.25	U	ug/L	P413413	
		Glufosinate	0.10	U	ug/L	P413413	
		Glyphosate	0.10	U	ug/L	P413413	
		Afidopyropen	0.0020	U	ug/L	P413414	
		Bentazon	8.0E-04	U	ug/L	P413414	
		Sucralose	0.075		ug/L	P413413	
		Benzovindiflupyr	0.0020	U	ug/L	P413414	
		Carbamazepine	8.0E-04	U	ug/L	P413414	
		Clothianidin	0.0020	U	ug/L	P413414	
		Dinotefuran	0.0020	U	ug/L	P413414	
		Diuron	0.0020	U	ug/L	P413414	
		Fenuron	0.032	U	ug/L	P413414	
		Fluridone	8.0E-04	U	ug/L	P413414	
		Imazapyr	0.0040	U	ug/L	P413414	
		Hydrocodone	0.0020	U	ug/L	P413414	
		Ibuprofen	0.020	U	ug/L	P413414	
		Imidacloprid	0.0020	U	ug/L	P413414	
		Linuron	0.0040	U	ug/L	P413414	
		Mandestrobin	0.0020	U	ug/L	P413414	
		MCPP	0.0040	U	ug/L	P413414	
		Naproxen	0.0080	U	ug/L	P413414	
		Primidone	0.0040	U	ug/L	P413414	
		Pyraclostrobin	0.0020	U	ug/L	P413414	
		Silvex	0.0040	U	ug/L	P413414	
		Thiamethoxam	0.0020	U	ug/L	P413414	
		Tolfenpyrad	0.0020	U	ug/L	P413414	
		Triclopyr	0.0040	U	ug/L	P413414	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P413413

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: P413414

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P413413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	105		P	40 - 150
AMPA	88.7		P	40 - 150
Endothall	94.8		P	40 - 150
Glufosinate	95.5		P	40 - 150
Glyphosate	88.5		P	40 - 150
Sucralose	99.1		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P413414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.4		P	40 - 150
2,4,5-T	90.3		P	40 - 150
Acetaminophen	82.1		P	30 - 150
Acetamiprid	77.2		P	40 - 150
Afidopyropen	68.5		P	30 - 150
Bentazon	106		P	30 - 150
Benzovindiflupyr	82.5		P	40 - 150
Carbamazepine	79.2		P	40 - 150
Clothianidin	111		P	40 - 150
Dinotefuran	115		P	40 - 150
Diuron	89.4		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	81.2		P	40 - 150
Hydrocodone	99.8		P	40 - 150
Ibuprofen	78.3		P	40 - 150
Imazapyr	111		P	40 - 150
Imidacloprid	96.8		P	40 - 150
Linuron	73.6		P	40 - 150
Mandestrobin	79.2		P	40 - 150
MCPP	135		P	40 - 150
Naproxen	61.1		P	40 - 150
Primidone	108		P	40 - 150
Pyraclostrobin	73.5		P	40 - 150
Silvex	105		P	40 - 150
Thiamethoxam	100		P	40 - 150
Tolfenpyrad	57.2		P	30 - 150
Triclopyr	94.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P413413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2324862	Acesulfame K	102	101	P/P	40 - 150
2324862	AMPA	85.1	89.4	P/P	40 - 150
2324862	Endothall	96.0	97.1	P/P	40 - 150
2324862	Glufosinate	80.4	85.5	P/P	40 - 150
2324862	Glyphosate	79.9	82.3	P/P	40 - 150
2324862	Sucralose	104	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P413414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2324068	2,4-D	84.2	96.0	P/P	40 - 150
2324068	2,4,5-T	68.8	91.7	P/P	40 - 150
2324068	Acetaminophen	102	103	P/P	30 - 150
2324068	Acetamiprid	62.2	71.7	P/P	40 - 150
2324068	Afidopyropen	60.6	68.9	P/P	30 - 150
2324068	Bentazon	109	126	P/P	30 - 150
2324068	Benzovindiflupyr	79.4	78.6	P/P	40 - 150
2324068	Carbamazepine	82.3	86.6	P/P	40 - 150
2324068	Clothianidin	105	112	P/P	40 - 150
2324068	Dinotefuran	115	121	P/P	40 - 150
2324068	Diuron	79.9	85.8	P/P	40 - 150
2324068	Fenuron	106	101	P/P	40 - 150
2324068	Fluridone	73.7	82.0	P/P	40 - 150
2324068	Hydrocodone	96.3	99.3	P/P	40 - 150
2324068	Ibuprofen	63.8	62.5	P/P	40 - 150
2324068	Imazapyr	128	132	P/P	40 - 150
2324068	Imidacloprid	92.5	102	P/P	40 - 150
2324068	Linuron	64.9	77.2	P/P	40 - 150
2324068	Mandestrobin	72.4	77.1	P/P	40 - 150
2324068	MCPP	121	145	P/P	40 - 150
2324068	Naproxen	53.8	70.7	P/P	40 - 150
2324068	Primidone	105	119	P/P	40 - 150
2324068	Pyraclostrobin	74.1	70.8	P/P	40 - 150
2324068	Silvex	83.0	92.9	P/P	40 - 150
2324068	Thiamethoxam	91.1	96.8	P/P	40 - 150
2324068	Tolfenpyrad	60.8	55.8	P/P	30 - 150
2324068	Triclopyr	79.9	96.2	P/P	40 - 150

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P413413

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2324862	Acesulfame K	0.959	Spike	P	0 - 30
2324862	AMPA	4.99	Spike	P	0 - 30
2324862	Endothall	1.15	Spike	P	0 - 30
2324862	Glufosinate	6.15	Spike	P	0 - 30
2324862	Glyphosate	3.00	Spike	P	0 - 30
2324862	Sucralose	1.28	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P413414

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2324068	2,4-D	13.0	Spike	P	0 - 30
2324068	2,4,5-T	28.6	Spike	P	0 - 30
2324068	Acetaminophen	1.40	Spike	P	0 - 30
2324068	Acetamiprid	14.2	Spike	P	0 - 30
2324068	Afidopyropen	12.9	Spike	P	0 - 30
2324068	Bentazon	14.7	Spike	P	0 - 30
2324068	Benzovindiflupyr	0.962	Spike	P	0 - 30
2324068	Carbamazepine	5.08	Spike	P	0 - 30
2324068	Clothianidin	6.83	Spike	P	0 - 30
2324068	Dinotefuran	4.96	Spike	P	0 - 30
2324068	Diuron	7.12	Spike	P	0 - 30
2324068	Fenuron	4.80	Spike	P	0 - 30
2324068	Fluridone	10.6	Spike	P	0 - 30
2324068	Hydrocodone	3.10	Spike	P	0 - 30
2324068	Ibuprofen	2.02	Spike	P	0 - 30
2324068	Imazapyr	3.26	Spike	P	0 - 30
2324068	Imidacloprid	10.2	Spike	P	0 - 30
2324068	Linuron	17.2	Spike	P	0 - 30
2324068	Mandestrobin	6.28	Spike	P	0 - 30
2324068	MCPP	18.2	Spike	P	0 - 30
2324068	Naproxen	27.1	Spike	P	0 - 30
2324068	Primidone	12.2	Spike	P	0 - 30
2324068	Pyraclostrobin	4.52	Spike	P	0 - 30
2324068	Silvex	11.2	Spike	P	0 - 30
2324068	Thiamethoxam	6.03	Spike	P	0 - 30
2324068	Tolfenpyrad	8.45	Spike	P	0 - 30
2324068	Triclopyr	18.6	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2324803

Field Sample ID: G1TLHR0164

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	144	P	30 - 160
EPA 8321B	Carbamazepine-d10	58.2	P	30 - 160
EPA 8321B	Diuron-d6	52.5	P	30 - 160
EPA 8321B	Endothall-d6	92.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	94.2	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A111978
Included Lab Sample IDs: 2324803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	84.3	92.9	P/P	60 - 160
Endothall	85.8	91.1	P/P	60 - 160
Glufosinate	85.3	95.4	P/P	60 - 160
Glyphosate	89.1	90.3	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A111979
Included Lab Sample IDs: 2324803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	107	P/P	60 - 160
Sucralose	101	100	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A112172
Included Lab Sample IDs: 2324803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	118	107	P/P	50 - 150
2,4,5-T	125	113	P/P	50 - 150
Acetaminophen	129	128	P/P	60 - 160
Acetamiprid	121	118	P/P	50 - 150
Afidopyropen	105	104	P/P	50 - 150
Bentazon	118	129	P/P	50 - 160
Benzovindiflupyr	121	125	P/P	50 - 150
Carbamazepine	126	122	P/P	60 - 150
Clothianidin	130	130	P/P	60 - 150
Dinotefuran	119	117	P/P	50 - 150
Diuron	130	124	P/P	60 - 160
Fenuron	121	115	P/P	60 - 150
Fluridone	111	109	P/P	60 - 160
Hydrocodone	120	119	P/P	60 - 150
Ibuprofen	94.9	103	P/P	50 - 160
Imazapyr	132	122	P/P	50 - 150
Imidacloprid	140	135	P/P	60 - 150
Linuron	121	121	P/P	60 - 150
Mandestrobin	109	104	P/P	50 - 150
MCPP	127	128	P/P	50 - 150
Naproxen	95.2	115	P/P	50 - 160
Primidone	122	118	P/P	60 - 150
Pyraclostrobin	105	103	P/P	60 - 150
Silvex	139	138	P/P	50 - 150
Thiamethoxam	136	136	P/P	50 - 150
Tolfenpyrad	124	124	P/P	60 - 150
Triclopyr	145	120	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			
EPA 8321B	2,4-D	92.4	84.2	96.0		13.0
	2,4,5-T	90.3	68.8	91.7		28.6
	Acesulfame K	105	102	101		0.959
	Acetaminophen	82.1	102	103		1.40
	Acetamiprid	77.2	62.2	71.7		14.2
	Afidopyropen	68.5	60.6	68.9		12.9
	AMPA	88.7	85.1	89.4		4.99
	Bentazon	106	109	126		14.7
	Benzovindiflupyr	82.5	79.4	78.6		0.962
	Carbamazepine	79.2	82.3	86.6		5.08
	Clothianidin	111	105	112		6.83
	Dinotefuran	115	115	121		4.96
	Diuron	89.4	79.9	85.8		7.12
	Endothall	94.8	96.0	97.1		1.15
	Fenuron	112	106	101		4.80
	Fluridone	81.2	73.7	82.0		10.6
	Glufosinate	95.5	80.4	85.5		6.15
	Glyphosate	88.5	79.9	82.3		3.00
	Hydrocodone	99.8	96.3	99.3		3.10
	Ibuprofen	78.3	62.5	63.8		2.02
	Imazapyr	111	128	132		3.26
	Imidacloprid	96.8	92.5	102		10.2
	Linuron	73.6	64.9	77.2		17.2
	Mandestrobin	79.2	72.4	77.1		6.28
	MCPP	135	121	145		18.2
	Naproxen	61.1	53.8	70.7		27.1
	Primidone	108	105	119		12.2
	Pyraclostrobin	73.5	74.1	70.8		4.52
	Silvex	105	83.0	92.9		11.2
	Sucralose	99.1	104	103		1.28
	Thiamethoxam	100	91.1	96.8		6.03
	Tolfenpyrad	57.2	60.8	55.8		8.45
	Triclopyr	94.9	79.9	96.2		18.6

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2324803

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/04/2022	05/06/2022 10:30	June Rhew	05/09/2022 23:42	Juyoung Kim	2324803
	05/04/2022	05/06/2022 12:30	Umesh Chiluwal	05/06/2022 18:15	Umesh Chiluwal	2324803
	05/04/2022	05/06/2022 12:30	Umesh Chiluwal	05/07/2022 05:02	Umesh Chiluwal	2324803