

Chemical Analysis Report

CEN-DIST-2021-12-02-01

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

Event Description: **Tributary to Econlockhatchee**
Request ID: **RQ-2021-10-18-12**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
3319 Maguire Blvd. Suite 232
Orlando, FL 32803-3767
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-DEC-2021 16:20

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Econ River Trib @ 170m N of Jay Blanchard Trail

Collection Date/Time: 12/01/2021 09:40

Field ID: G2CE0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292417	EPA 8321B	2,4-D	0.0059	I	ug/L	P406988	
		Acesulfame K	0.23	I	ug/L	P406948	MS
		2,4,5-T	0.0040	U	ug/L	P406988	
		AMPA	0.47		ug/L	P406948	
		Acetaminophen	0.0080	U	ug/L	P406988	
		Acetamiprid	0.0020	U	ug/L	P406988	
		Endothall	0.25	U	ug/L	P406948	
		Glufosinate	0.10	U	ug/L	P406948	
		Glyphosate	0.70		ug/L	P406948	
		Afidopyropen	0.0020	U	ug/L	P406988	
		Bentazon	0.32		ug/L	P406988	
		Sucralose	0.66		ug/L	P406948	
		Benzovindiflupyr	0.0020	U	ug/L	P406988	
		Carbamazepine	8.0E-04	U	ug/L	P406988	
		Clothianidin	0.0020	U	ug/L	P406988	
		Dinotefuran	0.0078	I	ug/L	P406988	
		Diuron	0.0020	U	ug/L	P406988	
		Fenuron	0.016	U	ug/L	P406988	
		Fluridone	0.021		ug/L	P406988	
		Imazapyr	0.33		ug/L	P406988	
		Hydrocodone	0.0020	U	ug/L	P406988	
		Ibuprofen	0.020	U	ug/L	P406988	
		Imidacloprid	0.0072	I	ug/L	P406988	
		Linuron	0.0040	U	ug/L	P406988	RPD
		Mandestrobin	0.0020	U	ug/L	P406988	
		MCPP	0.0040	U	ug/L	P406988	
		Naproxen	0.0080	U	ug/L	P406988	
		Primidone	0.0040	U	ug/L	P406988	
		Pyraclostrobin	0.0020	U	ug/L	P406988	
		Thiamethoxam	0.0020	U	ug/L	P406988	
		Tolfenpyrad	0.0020	U	ug/L	P406988	
		Triclopyr	0.0040	U	ug/L	P406988	

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P406948

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: P406988

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	0.016	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	0.0040	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: P406948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.0		P	40 - 150
AMPA	111		P	40 - 160
Endothall	71.4		P	40 - 150
Glufosinate	96.1		P	40 - 160
Glyphosate	115		P	40 - 160
Sucralose	100		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P406988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.1		P	40 - 150
2,4,5-T	109		P	40 - 150
Acetaminophen	100		P	30 - 150
Acetamiprid	96.1		P	40 - 150
Afidopyropen	70.4		P	40 - 150
Bentazon	95.1		P	30 - 150
Benzovindiflupyr	75.6		P	40 - 150
Carbamazepine	86.7		P	40 - 150
Clothianidin	112		P	40 - 150
Dinotefuran	89.9		P	40 - 150
Diuron	103		P	40 - 150
Fenuron	94.3		P	40 - 150
Fluridone	91.8		P	40 - 150
Hydrocodone	92.9		P	40 - 150
Ibuprofen	57.7		P	40 - 150
Imazapyr	120		P	40 - 150
Imidacloprid	103		P	40 - 150
Linuron	107		P	40 - 150
Mandestrobin	86.2		P	40 - 150
MCPP	104		P	40 - 150
Naproxen	140		P	40 - 150
Primidone	91.4		P	40 - 150
Pyraclostrobin	83.7		P	40 - 150
Thiamethoxam	105		P	40 - 150
Tolfenpyrad	36.4		P	30 - 150
Triclopyr	129		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P406948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291412	Acesulfame K	168	177	F/F	40 - 150
2291412	AMPA	82.8	97.7	P/P	40 - 160
2291412	Endothall	79.4	81.4	P/P	40 - 150
2291412	Glufosinate	78.5	89.1	P/P	40 - 160
2291412	Glyphosate	79.7	85.3	P/P	40 - 160
2291412	Sucralose	104	109	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P406988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291477	2,4,5-T	141	108	P/P	40 - 150
2291477	Acetaminophen	88.9	114	P/P	30 - 150
2291477	Acetamiprid	92.1	94.8	P/P	40 - 150
2291477	Afidopyropen	82.6	82.8	P/P	40 - 150
2291477	Benzovindiflupyr	80.3	87.3	P/P	40 - 150
2291477	Carbamazepine	82.8	94.2	P/P	40 - 150
2291477	Clothianidin	118	109	P/P	40 - 150
2291477	Dinotefuran	107	120	P/P	40 - 150
2291477	Diuron	80.8	76.5	P/P	40 - 150
2291477	Fenuron	81.6	84.0	P/P	40 - 150
2291477	Hydrocodone	101	103	P/P	40 - 150
2291477	Ibuprofen	68.2	61.1	P/P	40 - 150
2291477	Imazapyr	98.1	125	P/P	40 - 150
2291477	Imidacloprid	128	130	P/P	40 - 150
2291477	Linuron	102	69.9	P/P	40 - 150
2291477	Mandestrobin	78.1	87.6	P/P	40 - 150
2291477	MCP	97.0	95.3	P/P	40 - 150
2291477	Naproxen	59.6	78.6	P/P	40 - 150
2291477	Primidone	102	103	P/P	40 - 150
2291477	Pyraclostrobin	76.2	85.4	P/P	40 - 150
2291477	Thiamethoxam	132	146	P/P	40 - 150
2291477	Tolfenpyrad	44.8	57.0	P/P	30 - 150
2291477	Triclopyr	110	82.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P406948

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291412	Acesulfame K	5.18	Spike	P	0 - 30
2291412	AMPA	16.5	Spike	P	0 - 30
2291412	Endothall	2.51	Spike	P	0 - 30
2291412	Glufosinate	12.6	Spike	P	0 - 30
2291412	Glyphosate	6.81	Spike	P	0 - 30
2291412	Sucralose	4.48	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P406988

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291477	2,4-D	20.9	Spike	P	0 - 30
2291477	2,4,5-T	26.4	Spike	P	0 - 30
2291477	Acetaminophen	24.6	Spike	P	0 - 30
2291477	Acetamiprid	2.92	Spike	P	0 - 30
2291477	Afidopyropen	0.164	Spike	P	0 - 30
2291477	Bentazon	27.0	Spike	P	0 - 30
2291477	Benzovindiflupyr	8.39	Spike	P	0 - 30
2291477	Carbamazepine	12.3	Spike	P	0 - 30
2291477	Clothianidin	8.05	Spike	P	0 - 30
2291477	Dinotefuran	11.0	Spike	P	0 - 30
2291477	Diuron	4.69	Spike	P	0 - 30
2291477	Fenuron	2.92	Spike	P	0 - 30
2291477	Fluridone	2.80	Spike	P	0 - 30
2291477	Hydrocodone	2.54	Spike	P	0 - 30
2291477	Ibuprofen	11.0	Spike	P	0 - 30
2291477	Imazapyr	24.3	Spike	P	0 - 30
2291477	Imidacloprid	1.74	Spike	P	0 - 30
2291477	Linuron	37.2	Spike	F	0 - 30
2291477	Mandestrobin	11.5	Spike	P	0 - 30
2291477	MCPP	1.86	Spike	P	0 - 30
2291477	Naproxen	27.6	Spike	P	0 - 30
2291477	Primidone	1.01	Spike	P	0 - 30
2291477	Pyraclostrobin	11.4	Spike	P	0 - 30
2291477	Thiamethoxam	9.57	Spike	P	0 - 30
2291477	Tolfenpyrad	24.0	Spike	P	0 - 30
2291477	Triclopyr	28.5	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2292417

Field Sample ID: G2CE0198

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	97.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.4	P	30 - 160
EPA 8321B	Diuron-d6	63.4	P	30 - 160
EPA 8321B	Endothall-d6	96.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	89.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	38.1	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	93.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A109189
 Included Lab Sample IDs: 2292417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	99.5	103	P/P	60 - 160
Glufosinate	97.1	98.4	P/P	60 - 160
Glyphosate	107	106	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A109218
 Included Lab Sample IDs: 2292417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	77.4	66.8	P/P	60 - 160
Endothall	70.4	64.9	P/P	60 - 160
Sucralose	106	104	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A109350
 Included Lab Sample IDs: 2292417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	119	69.6	P/P	50 - 150
2,4,5-T	100	94.5	P/P	50 - 150
Acetaminophen	94.6	91.9	P/P	60 - 160
Acetamiprid	103	96.1	P/P	50 - 150
Afidopyropen	104	102	P/P	50 - 150
Bentazon	148	116	P/P	50 - 160
Benzovindiflupyr	83.0	118	P/P	50 - 150
Carbamazepine	107	96.2	P/P	60 - 150
Clothianidin	106	115	P/P	60 - 150
Dinotefuran	118	93.1	P/P	50 - 150
Diuron	109	109	P/P	60 - 160
Fenuron	100	102	P/P	60 - 150
Fluridone	99.7	111	P/P	60 - 160
Hydrocodone	99.0	98.4	P/P	60 - 150
Ibuprofen	113	69.9	P/P	50 - 160
Imazapyr	94.6	85.4	P/P	50 - 150
Imidacloprid	75.3	94.6	P/P	60 - 150
Linuron	92.2	84.6	P/P	60 - 150
Mandestrobin	106	111	P/P	50 - 150
MCPP	94.1	110	P/P	50 - 150
Naproxen	141	92.8	P/P	50 - 160
Primidone	111	83.0	P/P	60 - 150
Pyraclostrobin	117	108	P/P	60 - 150
Thiamethoxam	111	113	P/P	50 - 150
Tolfenpyrad	101	61.8	P/P	60 - 150
Triclopyr	108	87.3	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
EPA 8321B	2,4-D	99.1				20.9
	2,4,5-T	109	141	108		26.4
	Acesulfame K	81.0	168	177		5.18
	Acetaminophen	100	88.9	114		24.6
	Acetamiprid	96.1	92.1	94.8		2.92
	Afidopyropen	70.4	82.6	82.8		0.164
	AMPA	111	82.8	97.7		16.5
	Bentazon	95.1				27.0
	Benzovindiflupyr	75.6	80.3	87.3		8.39
	Carbamazepine	86.7	82.8	94.2		12.3
	Clothianidin	112	118	109		8.05
	Dinotefuran	89.9	107	120		11.0
	Diuron	103	80.8	76.5		4.69
	Endothall	71.4	79.4	81.4		2.51
	Fenuron	94.3	81.6	84.0		2.92
	Fluridone	91.8				2.80
	Glufosinate	96.1	78.5	89.1		12.6
	Glyphosate	115	79.7	85.3		6.81
	Hydrocodone	92.9	101	103		2.54
	Ibuprofen	57.7	68.2	61.1		11.0
	Imazapyr	120	98.1	125		24.3
	Imidacloprid	103	128	130		1.74
	Linuron	107	102	69.9		37.2
	Mandestrobin	86.2	78.1	87.6		11.5
	MCPP	104	97.0	95.3		1.86
	Naproxen	140	59.6	78.6		27.6
	Primidone	91.4	102	103		1.01
	Pyraclostrobin	83.7	76.2	85.4		11.4
	Sucralose	100	104	109		4.48
	Thiamethoxam	105	132	146		9.57
	Tolfenpyrad	36.4	44.8	57.0		24.0
	Triclopyr	129	110	82.5		28.5

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2292417

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	12/02/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 01:07	Juyoung Kim	2292417
	12/02/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 16:19	Manjita Shrestha	2292417
	12/02/2021	12/06/2021 09:00	Hoor Shaik	12/11/2021 11:19	Juyoung Kim	2292417
	12/02/2021	12/06/2021 09:00	Hoor Shaik	12/13/2021 11:21	Juyoung Kim	2292417