

Chemical Analysis Report

CEN-DIST-2021-06-08-02

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-2021-05-03-18**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Kalina Warren

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: 28-JUN-2021 10:46



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: 06/07/2021 10:14

Field ID: G2CE0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2252960	EPA 8321B	2,4-D	0.010		ug/L	P399365	
		Acesulfame K	0.25	I	ug/L	P399424	
		2,4,5-T	0.0040	U	ug/L	P399365	
		AMPA	0.92		ug/L	P399424	
		Acetaminophen	0.0080	U	ug/L	P399365	
		Acetamiprid	0.0020	U	ug/L	P399365	
		Endothall	0.25	U	ug/L	P399424	
		Glufosinate	0.10	U	ug/L	P399424	
		Glyphosate	1.5		ug/L	P399424	
		Afidopyropen	0.0020	U	ug/L	P399365	
		Bentazon	0.031		ug/L	P399365	
		Sucralose	0.38		ug/L	P399424	
		Benzovindiflupyr	0.0020	U	ug/L	P399365	
		Carbamazepine	8.0E-04	U	ug/L	P399365	
		Clothianidin	0.0024	I	ug/L	P399365	
		Dinotefuran	0.0020	U	ug/L	P399365	
		Diuron	0.080		ug/L	P399365	
		Fenuron	0.016	U	ug/L	P399365	
		Fluridone	0.40		ug/L	P399365	
		Imazapyr	0.22		ug/L	P399365	
		Hydrocodone	0.0020	U	ug/L	P399365	
		Ibuprofen	0.020	U	ug/L	P399365	RPD
		Imidacloprid	0.0046	I	ug/L	P399365	MS
		Linuron	0.0040	U	ug/L	P399365	
		Mandestrobin	0.0020	U	ug/L	P399365	
		MCPP	0.0030	I	ug/L	P399365	MS
		Naproxen	0.0080	U	ug/L	P399365	
		Primidone	0.0040	U	ug/L	P399365	
		Pyraclostrobin	0.0020	U	ug/L	P399365	
		Thiamethoxam	0.0020	U	ug/L	P399365	
		Tolfenpyrad	0.0020	U	ug/L	P399365	
		Triclopyr	0.0040	U	ug/L	P399365	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P399365

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	0.0020	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

Reference Method: EPA 8321B

Batch ID: P399424

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: P399365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	30 - 160
2,4,5-T	125		P	30 - 160
Acetaminophen	73.4		P	30 - 150
Acetamiprid	88.9		P	30 - 160
Afidopyropen	80.4		P	30 - 160
Bentazon	38.5		P	30 - 150
Benzovindiflupyr	90.3		P	30 - 160
Carbamazepine	88.2		P	30 - 160
Clothianidin	95.0		P	30 - 160
Dinotefuran	81.6		P	30 - 160
Diuron	77.0		P	30 - 160
Fenuron	98.5		P	30 - 160
Fluridone	87.4		P	30 - 160
Hydrocodone	88.6		P	30 - 160
Ibuprofen	72.2		P	30 - 160
Imazapyr	94.4		P	30 - 160
Imidacloprid	89.5		P	30 - 160
Linuron	78.6		P	30 - 160
Mandestrobin	101		P	30 - 160
MCPP	152		P	30 - 160
Naproxen	121		P	30 - 160
Primidone	86.1		P	30 - 160
Pyraclostrobin	63.5		P	30 - 160
Thiamethoxam	87.4		P	30 - 160
Tolfenpyrad	59.0		P	30 - 160
Triclopyr	118		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P399424

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	85.6		P	40 - 150
AMPA	90.2		P	40 - 150
Endothall	93.0		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	100		P	40 - 150
Sucralose	111		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P399365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2252603	2,4-D	146	136	P/P	30 - 160
2252603	2,4,5-T	147	137	P/P	30 - 160
2252603	Acetaminophen	75.2	72.4	P/P	30 - 150
2252603	Acetamiprid	104	89.2	P/P	30 - 160
2252603	Afidopyropen	92.5	80.3	P/P	30 - 160
2252603	Bentazon	31.5	30.5	P/P	30 - 150
2252603	Benzovindiflupyr	100	86.9	P/P	30 - 160
2252603	Carbamazepine	93.2	88.9	P/P	30 - 160
2252603	Clothianidin	115	96.6	P/P	30 - 160
2252603	Dinotefuran	103	100	P/P	30 - 160
2252603	Diuron	92.6	81.2	P/P	30 - 160
2252603	Fenuron	97.3	88.0	P/P	30 - 160
2252603	Fluridone	84.0	78.7	P/P	30 - 160
2252603	Hydrocodone	98.8	92.9	P/P	30 - 160
2252603	Ibuprofen	94.0	67.6	P/P	30 - 160
2252603	Imazapyr	114	104	P/P	30 - 160
2252603	Imidacloprid	181	152	F/P	30 - 160
2252603	Linuron	85.5	80.5	P/P	30 - 160
2252603	Mandestrobin	108	103	P/P	30 - 160
2252603	MCCP	196	187	F/F	30 - 160
2252603	Naproxen	112	115	P/P	30 - 160
2252603	Primidone	107	101	P/P	30 - 160
2252603	Pyraclostrobin	82.4	81.4	P/P	30 - 160
2252603	Thiamethoxam	135	121	P/P	30 - 160
2252603	Tolfenpyrad	81.8	69.9	P/P	30 - 160
2252603	Triclopyr	151	146	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P399424

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2252786	Acesulfame K	48.9	52.2	P/P	40 - 150
2252786	AMPA	44.8	44.3	P/P	40 - 150
2252786	Endothall	51.9	41.3	P/P	40 - 150
2252786	Glufosinate	117	118	P/P	40 - 150
2252786	Glyphosate	90.9	91.8	P/P	40 - 150
2252786	Sucralose	108	90.9	P/P	40 - 150

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P399365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2252603	2,4-D	7.09	Spike	P	0 - 30
2252603	2,4,5-T	7.15	Spike	P	0 - 30
2252603	Acetaminophen	3.76	Spike	P	0 - 30
2252603	Acetamiprid	15.0	Spike	P	0 - 30
2252603	Afidopyropen	14.1	Spike	P	0 - 30
2252603	Bentazon	3.22	Spike	P	0 - 30
2252603	Benzovindiflupyr	14.3	Spike	P	0 - 30
2252603	Carbamazepine	4.70	Spike	P	0 - 30
2252603	Clothianidin	17.2	Spike	P	0 - 30
2252603	Dinotefuran	3.16	Spike	P	0 - 30
2252603	Diuron	13.2	Spike	P	0 - 30
2252603	Fenuron	10.0	Spike	P	0 - 30
2252603	Fluridone	5.48	Spike	P	0 - 30
2252603	Hydrocodone	6.15	Spike	P	0 - 30
2252603	Ibuprofen	32.7	Spike	F	0 - 30
2252603	Imazapyr	9.53	Spike	P	0 - 30
2252603	Imidacloprid	17.7	Spike	P	0 - 30
2252603	Linuron	5.96	Spike	P	0 - 30
2252603	Mandestrobin	4.67	Spike	P	0 - 30
2252603	MCP	4.57	Spike	P	0 - 30
2252603	Naproxen	2.12	Spike	P	0 - 30
2252603	Primidone	5.60	Spike	P	0 - 30
2252603	Pyraclostrobin	1.20	Spike	P	0 - 30
2252603	Thiamethoxam	10.8	Spike	P	0 - 30
2252603	Tolfenpyrad	15.7	Spike	P	0 - 30
2252603	Triclopyr	2.95	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P399424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2252786	Acesulfame K	6.61	Spike	P	0 - 30
2252786	AMPA	1.12	Spike	P	0 - 30
2252786	Endothall	22.9	Spike	P	0 - 30
2252786	Glufosinate	0.693	Spike	P	0 - 30
2252786	Glyphosate	0.757	Spike	P	0 - 30
2252786	Sucralose	16.9	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2252960

Field Sample ID: G2CE0198

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	145	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.4	P	30 - 160
EPA 8321B	Diuron-d6	81.7	P	30 - 160
EPA 8321B	Endothall-d6	87.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	104	P	30 - 160
EPA 8321B	Ibuprofen-d3	81.2	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	76.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A106009
 Included Lab Sample IDs: 2252960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.3	92.9	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A106011
 Included Lab Sample IDs: 2252960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	86.4	81.1	P/P	60 - 160
Endothall	112	104	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A106015
 Included Lab Sample IDs: 2252960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	87.8	85.0	P/P	60 - 160
Glufosinate	101	93.9	P/P	60 - 160
Glyphosate	102	96.2	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A106199
 Included Lab Sample IDs: 2252960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	87.7	96.7	P/P	50 - 150
2,4,5-T	95.8	93.9	P/P	50 - 150
Acetaminophen	85.5	81.0	P/P	60 - 160
Acetamiprid	105	102	P/P	50 - 150
Afidopyropen	110	130	P/P	50 - 150
Bentazon	93.2	92.0	P/P	50 - 160
Benzovindiflupyr	113	109	P/P	50 - 160
Carbamazepine	115	111	P/P	60 - 150
Clothianidin	108	107	P/P	60 - 150
Dinotefuran	87.6	87.8	P/P	50 - 150
Diuron	132	124	P/P	60 - 160
Fenuron	107	116	P/P	60 - 150
Fluridone	125	119	P/P	60 - 160
Hydrocodone	108	108	P/P	60 - 150
Ibuprofen	77.2	75.7	P/P	50 - 160
Imazapyr	93.5	103	P/P	50 - 150
Imidacloprid	94.3	94.5	P/P	60 - 150
Linuron	119	90.5	P/P	60 - 150
Mandestrobin	115	117	P/P	50 - 150
MCPP	110	103	P/P	50 - 150
Naproxen	124	92.3	P/P	50 - 160
Primidone	115	103	P/P	60 - 150
Pyraclostrobin	104	107	P/P	60 - 150
Thiamethoxam	99.4	102	P/P	50 - 150
Tolfenpyrad	117	132	P/P	60 - 150
Triclopyr	100	107	P/P	50 - 150

Quality Assurance Report

Calibration Verification

* 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	111	146	136		7.09
	2,4,5-T	125	147	137		7.15
	Acesulfame K	85.6	48.9	52.2		6.61
	Acetaminophen	73.4	75.2	72.4		3.76
	Acetamiprid	88.9	104	89.2		15.0
	Afidopyropen	80.4	92.5	80.3		14.1
	AMPA	90.2	44.8	44.3		1.12
	Bentazon	38.5	31.5	30.5		3.22
	Benzovindiflupyr	90.3	100	86.9		14.3
	Carbamazepine	88.2	93.2	88.9		4.70
	Clothianidin	95.0	115	96.6		17.2
	Dinotefuran	81.6	103	100		3.16
	Diuron	77.0	92.6	81.2		13.2
	Endothall	93.0	51.9	41.3		22.9
	Fenuron	98.5	97.3	88.0		10.0
	Fluridone	87.4	84.0	78.7		5.48
	Glufosinate	100	117	118		0.693
	Glyphosate	100	90.9	91.8		0.757
	Hydrocodone	88.6	98.8	92.9		6.15
	Ibuprofen	72.2	94.0	67.6		32.7
	Imazapyr	94.4	114	104		9.53
	Imidacloprid	89.5	181	152		17.7
	Linuron	78.6	85.5	80.5		5.96
	Mandestrobin	101	108	103		4.67
	MCPP	152	196	187		4.57
	Naproxen	121	112	115		2.12
	Primidone	86.1	107	101		5.60
	Pyraclostrobin	63.5	82.4	81.4		1.20
	Sucralose	111	108	90.9		16.9
	Thiamethoxam	87.4	135	121		10.8
	Tolfenpyrad	59.0	81.8	69.9		15.7
	Triclopyr	118	151	146		2.95

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2252960

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	06/08/2021	06/10/2021 09:00	Juyoung Kim	06/10/2021 12:42	Juyoung Kim	2252960
	06/08/2021	06/10/2021 09:00	Juyoung Kim	06/10/2021 13:54	Juyoung Kim	2252960
	06/08/2021	06/10/2021 09:00	Juyoung Kim	06/11/2021 01:48	Juyoung Kim	2252960
	06/08/2021	06/11/2021 09:00	Hoor Shaik	06/20/2021 08:55	Juyoung Kim	2252960
	06/08/2021	06/11/2021 09:00	Hoor Shaik	06/21/2021 13:13	Juyoung Kim	2252960