

Chemical Analysis Report

CEN-DIST-2020-09-03-01

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

Event Description: **Boggy/Mills Creek**
Request ID: **RQ-2020-08-10-48**
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, Chemist Administrator

Date Certified: 17-SEP-2020 09:46



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: Boggy Creek @ 80m SE J Lawson Blvd.

Collection Date/Time: 09/02/2020 09:55

Field ID: G4CE0181

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2194017	EPA 8321B	2,4-D	0.015		ug/L	P386871	
		Acesulfame K**	0.10	U	ug/L	P386879	MS
		AMPA**	0.33	I	ug/L	P386879	
		Sucralose**	0.54		ug/L	P386879	MS
		Acetaminophen**	0.0080	U	ug/L	P386871	
		Acetamiprid**	0.0020	U	ug/L	P386871	
		Endothall**	0.25	U	ug/L	P386879	
		Glufosinate**	0.10	U	ug/L	P386879	MS
		Glyphosate**	0.10	U	ug/L	P386879	MS
		Afidopyropen**	0.0020	U	ug/L	P386871	
		Bentazon	0.018		ug/L	P386871	
		Benzovindiflupyr**	0.0020	U	ug/L	P386871	
		Carbamazepine**	8.0E-04	U	ug/L	P386871	
		Clothianidin**	0.0020	U	ug/L	P386871	
		Dinotefuran**	0.0020	U	ug/L	P386871	
		Diuron	0.0020	U	ug/L	P386871	
		Fenuron	0.016	U	ug/L	P386871	
		Fluridone**	0.024		ug/L	P386871	
		Imazapyr**	0.47		ug/L	P386871	
		Hydrocodone**	0.0020	U	ug/L	P386871	
		Ibuprofen**	0.020	U	ug/L	P386871	
		Imidacloprid	0.0061	I	ug/L	P386871	
		Linuron	0.0040	U	ug/L	P386871	
		Mandestrobin**	0.0020	U	ug/L	P386871	
		MCPP	0.0020	U	ug/L	P386871	
		Naproxen**	0.0080	U	ug/L	P386871	
		Primidone**	0.0040	U	ug/L	P386871	
		Pyraclostrobin**	0.0020	U	ug/L	P386871	
		Thiamethoxam**	0.0020	U	ug/L	P386871	
		Tolfenpyrad**	0.0020	U	ug/L	P386871	
		Triclopyr**	0.0040	U	ug/L	P386871	

Ref. Method and Comment:

EPA 8321B: MS accuracy for bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy and precision for diuron and fluridone 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: P386871

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

Reference Method: EPA 8321B
 Batch ID: P386879

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: P386871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	53.3		P	30 - 160
Acetaminophen	82.4		P	30 - 160
Acetamiprid	76.9		P	30 - 160
Afidopyropen	65.8		P	30 - 160
Bentazon	42.5		P	30 - 160
Benzovindiflupyr	67.0		P	30 - 160
Carbamazepine	69.3		P	30 - 160
Clothianidin	85.6		P	30 - 160
Dinotefuran	81.5		P	30 - 160
Diuron	75.1		P	30 - 160
Fenuron	90.1		P	30 - 160
Fluridone	97.4		P	30 - 160
Hydrocodone	80.0		P	30 - 160
Ibuprofen	41.5		P	30 - 160
Imazapyr	46.1		P	30 - 160
Imidacloprid	99.2		P	30 - 160
Linuron	71.7		P	30 - 160
Mandestrobin	74.5		P	30 - 160
MCPP	54.0		P	30 - 160
Naproxen	88.2		P	30 - 160
Primidone	80.2		P	30 - 160
Pyraclostrobin	66.4		P	30 - 160
Thiamethoxam	79.3		P	30 - 160
Tolfenpyrad	45.0		P	30 - 160
Triclopyr	48.4		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P386879

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	72.7		P	40 - 150
AMPA	84.7		P	40 - 150
Endothall	107		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	108		P	40 - 140
Sucralose	104		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P386871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193583	2,4-D	40.5	36.0	P/P	30 - 160
2193583	Acetaminophen	82.6	88.2	P/P	30 - 160
2193583	Acetamiprid	71.2	76.4	P/P	30 - 160
2193583	Afidopyropen	60.6	66.5	P/P	30 - 160
2193583	Benzovindiflupyr	54.6	60.5	P/P	30 - 160
2193583	Carbamazepine	53.7	55.7	P/P	30 - 160
2193583	Clothianidin	68.7	77.9	P/P	30 - 160
2193583	Dinotefuran	83.6	88.1	P/P	30 - 160
2193583	Fenuron	71.2	74.3	P/P	30 - 160
2193583	Hydrocodone	65.3	69.6	P/P	30 - 160
2193583	Ibuprofen	38.6	40.5	P/P	30 - 160
2193583	Imidacloprid	117	131	P/P	30 - 160
2193583	Linuron	61.9	65.0	P/P	30 - 160
2193583	Mandestrobin	65.3	71.0	P/P	30 - 160
2193583	MCCP	39.6	39.5	P/P	30 - 160
2193583	Naproxen	47.3	60.1	P/P	30 - 160
2193583	Primidone	76.7	78.9	P/P	30 - 160
2193583	Pyraclostrobin	61.6	62.4	P/P	30 - 160
2193583	Thiamethoxam	79.1	82.2	P/P	30 - 160
2193583	Tolfenpyrad	41.5	45.6	P/P	30 - 160
2193583	Triclopyr	39.4	37.0	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P386879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193353	Acesulfame K	29.8	29.0	F/F	40 - 150
2193353	AMPA	48.6	42.7	P/P	40 - 150
2193353	Endothall	90.2	106	P/P	40 - 150
2193353	Glufosinate	182	152	F/F	40 - 150
2193353	Glyphosate	510	446	F/F	40 - 140
2193353	Sucralose	22.1	19.2	F/F	40 - 150

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P386871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193583	2,4-D	6.46	Spike	P	0 - 30
2193583	Acetaminophen	6.53	Spike	P	0 - 30
2193583	Acetamiprid	7.04	Spike	P	0 - 30
2193583	Afidopyropen	9.34	Spike	P	0 - 30
2193583	Bentazon	0.726	Spike	P	0 - 30
2193583	Benzovindiflupyr	10.3	Spike	P	0 - 30
2193583	Carbamazepine	3.29	Spike	P	0 - 30
2193583	Clothianidin	12.2	Spike	P	0 - 30
2193583	Dinotefuran	4.99	Spike	P	0 - 30
2193583	Fenuron	4.28	Spike	P	0 - 30
2193583	Hydrocodone	6.36	Spike	P	0 - 30
2193583	Ibuprofen	4.95	Spike	P	0 - 30
2193583	Imazapyr	1.33	Spike	P	0 - 30
2193583	Imidacloprid	8.23	Spike	P	0 - 30
2193583	Linuron	4.87	Spike	P	0 - 30
2193583	Mandestrobin	8.42	Spike	P	0 - 30
2193583	MCPP	0.241	Spike	P	0 - 30
2193583	Naproxen	23.9	Spike	P	0 - 30
2193583	Primidone	2.66	Spike	P	0 - 30
2193583	Pyraclostrobin	1.41	Spike	P	0 - 30
2193583	Thiamethoxam	3.81	Spike	P	0 - 30
2193583	Tolfenpyrad	9.25	Spike	P	0 - 30
2193583	Triclopyr	6.33	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P386879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193353	Acesulfame K	2.76	Spike	P	0 - 30
2193353	AMPA	5.28	Spike	P	0 - 30
2193353	Endothall	16.4	Spike	P	0 - 30
2193353	Glufosinate	17.7	Spike	P	0 - 30
2193353	Glyphosate	6.17	Spike	P	0 - 30
2193353	Sucralose	8.16	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2194017
Field Sample ID: G4CE0181

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	75.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	69.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.0	P	30 - 160
EPA 8321B	Diuron-d6	54.8	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Ibuprofen-d3	91.8	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	92.0	P	30 - 160
EPA 8321B	Sucralose-d6	92.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A100818
Included Lab Sample IDs: 2194017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	81.3	91.0	P/P	60 - 160
Glufosinate	97.2	96.6	P/P	60 - 160
Glyphosate	110	112	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A100901
Included Lab Sample IDs: 2194017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	62.4	64.7	P/P	60 - 160
Endothall	122	115	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A100936
Included Lab Sample IDs: 2194017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.9	102	P/P	50 - 150
Acetaminophen	107	94.6	P/P	60 - 160
Acetamiprid	113	112	P/P	50 - 150
Afidopyropen	102	101	P/P	50 - 150
Bentazon	109	126	P/P	50 - 160
Benzovindiflupyr	106	87.7	P/P	50 - 150
Carbamazepine	109	109	P/P	60 - 150
Clothianidin	119	91.6	P/P	60 - 150
Dinotefuran	104	96.1	P/P	50 - 150
Diuron	104	99.1	P/P	60 - 160
Fenuron	116	122	P/P	60 - 150
Fluridone	99.7	103	P/P	60 - 160
Hydrocodone	121	110	P/P	60 - 150
Ibuprofen	80.6	103	P/P	50 - 160
Imazapyr	142	130	P/P	50 - 160
Imidacloprid	98.7	102	P/P	60 - 150
Linuron	116	117	P/P	60 - 150
Mandestrobin	103	104	P/P	50 - 150
MCPP	98.1	110	P/P	50 - 150
Naproxen	64.4	76.4	P/P	50 - 160
Primidone	98.1	111	P/P	60 - 150
Pyraclostrobin	113	107	P/P	60 - 150
Thiamethoxam	112	108	P/P	50 - 150
Tolfenpyrad	137	120	P/P	60 - 150
Triclopyr	102	94.4	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A100956
Included Lab Sample IDs: 2194017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	99.2	P/P	60 - 160

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	53.3	40.5	36.0		6.46
	Acesulfame K	72.7	29.8	29.0		2.76
	Acetaminophen	82.4	82.6	88.2		6.53
	Acetamiprid	76.9	71.2	76.4		7.04
	Afidopyropen	65.8	60.6	66.5		9.34
	AMPA	84.7	48.6	42.7		5.28
	Bentazon	42.5				0.726
	Benzovindiflupyr	67.0	54.6	60.5		10.3
	Carbamazepine	69.3	53.7	55.7		3.29
	Clothianidin	85.6	68.7	77.9		12.2
	Dinotefuran	81.5	83.6	88.1		4.99
	Diuron	75.1				
	Endothall	107	90.2	106		16.4
	Fenuron	90.1	71.2	74.3		4.28
	Fluridone	97.4				
	Glufosinate	100	182	152		17.7
	Glyphosate	108	510	446		6.17
	Hydrocodone	80.0	65.3	69.6		6.36
	Ibuprofen	41.5	38.6	40.5		4.95
	Imazapyr	46.1				1.33
	Imidacloprid	99.2	117	131		8.23
	Linuron	71.7	61.9	65.0		4.87
	Mandestrobin	74.5	65.3	71.0		8.42
	MCPP	54.0	39.6	39.5		0.241
	Naproxen	88.2	47.3	60.1		23.9
	Primidone	80.2	76.7	78.9		2.66
	Pyraclostrobin	66.4	61.6	62.4		1.41
	Sucralose	104	22.1	19.2		8.16
	Thiamethoxam	79.3	79.1	82.2		3.81
	Tolfenpyrad	45.0	41.5	45.6		9.25
	Triclopyr	48.4	39.4	37.0		6.33

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2194017
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2194017

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/03/2020	09/03/2020 15:00	Hoor Shaik	09/11/2020 02:37	Juyoung Kim	2194017
	09/03/2020	09/03/2020 15:00	Rebecca Ware	09/03/2020 15:04	Rebecca Ware	2194017
	09/03/2020	09/03/2020 15:00	Rebecca Ware	09/04/2020 16:24	Rebecca Ware	2194017
	09/03/2020	09/03/2020 15:00	Rebecca Ware	09/10/2020 15:02	Rebecca Ware	2194017