

Chemical Analysis Report

SO-DIST-2018-04-19-01

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

Event Description: **Hudson, Matheny**
Request ID: **RQ-2018-04-16-23**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 23-MAY-2018 12:40

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 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: DrainToHudson @ShadeAve

Collection Date/Time: 04/18/2018 09:30

Field ID: G3SD0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985848	EPA 8321B	2,4-D	0.0020	I	ug/L	P343718	
		Bentazon	8.0E-04	U	ug/L	P343718	
		MCP	0.0020	U	ug/L	P343718	
		Triclopyr**	0.0040	U	ug/L	P343718	
		Imidacloprid	0.031		ug/L	P343718	MS
		Diuron	0.0029	I	ug/L	P343718	
		Pyraclorobin**	0.0020	U	ug/L	P343718	
		Primidone**	0.0040	U	ug/L	P343718	
		Linuron	0.0040	U	ug/L	P343718	
		Acetaminophen**	0.0080	U	ug/L	P343718	
		Fenuron	0.0080	U	ug/L	P343718	
		Imazapyr**	2.0		ug/L	P343718	
		Carbamazepine**	4.0E-04	U	ug/L	P343718	
		Fluridone**	0.0025		ug/L	P343718	
		Hydrocodone**	8.0E-04	U	ug/L	P343718	
		Sucralose**	0.10	U	ug/L	P343665	
		Glyphosate**	2.7	J	ug/L	P343665	SUR
		AMPA**	0.64	J	ug/L	P343665	SUR
		Endothall**	0.10	U	ug/L	P343665	
		Glufosinate**	0.10	UJ	ug/L	P343665	SUR

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

Sample Location: Matheny Creek @BenevaRd

Collection Date/Time: 04/18/2018 10:00

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985849	EPA 8321B	2,4-D	0.024		ug/L	P343718	
		Bentazon	0.032		ug/L	P343718	
		MCP	0.0043	I	ug/L	P343718	
		Triclopyr**	0.0040	U	ug/L	P343718	
		Imidacloprid	0.014		ug/L	P343718	MS
		Diuron	0.0020	U	ug/L	P343718	
		Pyraclorobin**	0.0020	U	ug/L	P343718	
		Primidone**	0.0040	U	ug/L	P343718	
		Linuron	0.0040	U	ug/L	P343718	
		Acetaminophen**	0.0080	U	ug/L	P343718	
		Fenuron	0.0080	U	ug/L	P343718	
		Imazapyr**	7.2		ug/L	P343718	
		Carbamazepine**	9.2E-04	I	ug/L	P343718	
		Fluridone**	0.10		ug/L	P343718	
		Hydrocodone**	8.0E-04	U	ug/L	P343718	
		Sucralose**	0.10	U	ug/L	P343665	
		Glyphosate**	8.8	J	ug/L	P343665	SUR

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985849	EPA 8321B	AMPA**	1.2	J	ug/L	P343665	SUR
		Endothall**	0.10	U	ug/L	P343665	
		Glufosinate**	0.10	UJ	ug/L	P343665	SUR

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P343665

Component	Result	Code	Units
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P343718

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P343665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	82.0		P	40 - 140
Endothall	86.7		P	40 - 140
Glufosinate	61.2		P	40 - 140
Glyphosate	68.7		P	40 - 140
Sucralose	105		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P343718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	95.8		P	40 - 150
Acetaminophen	94.1		P	30 - 150
Bentazon	105		P	30 - 150
Carbamazepine	104		P	40 - 150
Diuron	83.2		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	90.0		P	40 - 150
Hydrocodone	107		P	40 - 150
Imazapyr	120		P	40 - 150
Imidacloprid	114		P	40 - 160
Linuron	98.9		P	40 - 150
MCP	98.6		P	40 - 150
Primidone	105		P	40 - 150
Pyraclostrobin	84.1		P	40 - 150
Triclopyr	105		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985613	AMPA	71.3	64.8	P/P	40 - 140
1985613	Endothall	91.1	89.7	P/P	40 - 140
1985613	Glufosinate	86.7	91.3	P/P	40 - 140
1985613	Glyphosate	79.3	78.2	P/P	40 - 140
1985613	Sucralose	71.3	65.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985800	2,4-D	73.2	69.0	P/P	40 - 150
1985800	Acetaminophen	105	110	P/P	30 - 150
1985800	Bentazon	43.0	42.4	P/P	30 - 150
1985800	Carbamazepine	77.0	80.9	P/P	40 - 150
1985800	Diuron	69.8	69.4	P/P	40 - 150
1985800	Fenuron	75.8	78.8	P/P	40 - 150
1985800	Fluridone	74.5	76.3	P/P	40 - 150
1985800	Hydrocodone	108	114	P/P	40 - 150
1985800	Imidacloprid	193	201	F/F	40 - 160
1985800	Linuron	88.0	101	P/P	40 - 150
1985800	MCP	70.2	65.1	P/P	40 - 150
1985800	Primidone	91.2	101	P/P	40 - 150
1985800	Pyraclostrobin	80.2	81.6	P/P	40 - 150
1985800	Triclopyr	78.2	78.0	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985613	AMPA	7.02	Spike	P	0 - 30
1985613	Endothall	1.56	Spike	P	0 - 30
1985613	Glufosinate	5.12	Spike	P	0 - 30
1985613	Glyphosate	1.11	Spike	P	0 - 30
1985613	Sucralose	7.89	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985800	2,4-D	4.35	Spike	P	0 - 30
1985800	Acetaminophen	4.74	Spike	P	0 - 30
1985800	Bentazon	0.982	Spike	P	0 - 30
1985800	Carbamazepine	4.92	Spike	P	0 - 30
1985800	Diuron	0.635	Spike	P	0 - 30
1985800	Fenuron	3.77	Spike	P	0 - 30
1985800	Fluridone	2.34	Spike	P	0 - 30
1985800	Hydrocodone	5.46	Spike	P	0 - 30
1985800	Imazapyr	1.13	Spike	P	0 - 30
1985800	Imidacloprid	3.76	Spike	P	0 - 30
1985800	Linuron	13.8	Spike	P	0 - 30
1985800	MCP	7.45	Spike	P	0 - 30
1985800	Primidone	9.71	Spike	P	0 - 30
1985800	Pyraclostrobin	1.74	Spike	P	0 - 30
1985800	Triclopyr	0.270	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1985848
Field Sample ID: G3SD0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	59.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	112	P	30 - 160
EPA 8321B	Carbamazepine-d10	99.3	P	30 - 160
EPA 8321B	Diuron-d6	69.5	P	30 - 160
EPA 8321B	Endothall-d6	51.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	38.2	F	40 - 160
EPA 8321B	Primidone-d5	98.2	P	30 - 160
EPA 8321B	Sucralose-d6	58.9	P	40 - 160

Lab Sample ID: 1985849
Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1985849
Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	57.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.9	P	30 - 160
EPA 8321B	Diuron-d6	66.7	P	30 - 160
EPA 8321B	Endothall-d6	41.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	38.9	F	40 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	63.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83370
Included Lab Sample IDs: 1985848, 1985849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	81.4	83.2	P/P	60 - 150
Endothall	87.6	90.0	P/P	60 - 150
Glufosinate	76.6	76.5	P/P	60 - 150
Glyphosate	103	92.2	P/P	60 - 150
Sucralose	104	92.8	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A83753
Included Lab Sample IDs: 1985848, 1985849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	102	P/P	50 - 150
Acetaminophen	109	107	P/P	60 - 150
Bentazon	132	136	P/P	50 - 150
Carbamazepine	100	117	P/P	60 - 150
Diuron	86.2	106	P/P	60 - 150
Fenuron	117	116	P/P	60 - 150
Fluridone	104	103	P/P	60 - 160
Hydrocodone	112	112	P/P	60 - 150
Imidacloprid	108	108	P/P	60 - 150
Linuron	112	109	P/P	60 - 150
MCPP	111	106	P/P	50 - 150
Primidone	95.4	98.3	P/P	60 - 150
Pyraclostrobin	101	102	P/P	60 - 150
Triclopyr	114	115	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A83883
Included Lab Sample IDs: 1985848, 1985849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imazapyr	92.4	106	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	95.8	73.2	69.0		4.35
	Acetaminophen	94.1	105	110		4.74
	AMPA	82.0	71.3	64.8		7.02
	Bentazon	105	43.0	42.4		0.982
	Carbamazepine	104	77.0	80.9		4.92
	Diuron	83.2	69.8	69.4		0.635
	Endothall	86.7	91.1	89.7		1.56
	Fenuron	112	75.8	78.8		3.77
	Fluridone	90.0	74.5	76.3		2.34
	Glufosinate	61.2	86.7	91.3		5.12
	Glyphosate	68.7	79.3	78.2		1.11
	Hydrocodone	107	108	114		5.46
	Imazapyr	120				1.13
	Imidacloprid	114	193	201		3.76
	Linuron	98.9	88.0	101		13.8
	MCPP	98.6	70.2	65.1		7.45
	Primidone	105	91.2	101		9.71
	Pyraclostrobin	84.1	80.2	81.6		1.74
	Sucralose	105	71.3	65.1		7.89
	Triclopyr	105	78.2	78.0		0.270

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1985848, 1985849

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/19/2018	04/19/2018 12:30	Hoor Shaik	04/19/2018 20:49	S. M. Reddy	1985848
	04/19/2018	04/19/2018 12:30	Hoor Shaik	04/19/2018 21:05	S. M. Reddy	1985849
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/04/2018 01:37	Juyoung Kim	1985848
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/04/2018 02:12	Juyoung Kim	1985849
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/06/2018 08:24	Juyoung Kim	1985848
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/06/2018 08:58	Juyoung Kim	1985849
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/10/2018 19:14	Juyoung Kim	1985849
	04/19/2018	04/24/2018 10:00	Hoor Shaik	05/10/2018 19:49	Juyoung Kim	1985848