

Chemical Analysis Report

SO-DIST-2017-09-19-01

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

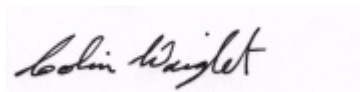
Event Description: **Lee County Tracers & Markers**
Request ID: **RQ-2017-08-21-03**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 05-OCT-2017 15:07

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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 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: BAYSHORE CR @ SR78; JUST EAST OF RAILROAD TRACKS

Collection Date/Time: 09/18/2017 10:28

Field ID: AD52590

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929673	EPA 8321B	Sucralose**	0.010	U	ug/L	P331875	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331876	
		Diuron	8.0E-04	U	ug/L	P331876	
		Fenuron	0.0080	U	ug/L	P331876	
		Imidacloprid	0.0020	I	ug/L	P331876	MS
		Bentazon	8.0E-04	U	ug/L	P331876	MS
		Linuron	0.0040	U	ug/L	P331876	
		Acetaminophen**	0.0080	U	ug/L	P331876	
		MCP	0.0020	U	ug/L	P331876	
		Carbamazepine**	4.0E-04	U	ug/L	P331876	
		Triclopyr**	0.0040	U	ug/L	P331876	
		Primidone**	0.0040	U	ug/L	P331876	
		Fluridone**	4.0E-04	U	ug/L	P331876	

Sample Location: JUST WEST OF N EVALENA RD.

Collection Date/Time: 09/18/2017 11:52

Field ID: AD52597

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929674	EPA 8321B	Sucralose**	0.036	I	ug/L	P331875	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331876	
		Diuron	8.0E-04	U	ug/L	P331876	
		Fenuron	0.0080	U	ug/L	P331876	
		Imidacloprid	0.0053		ug/L	P331876	MS
		Bentazon	8.0E-04	U	ug/L	P331876	MS
		Linuron	0.0040	U	ug/L	P331876	
		Acetaminophen**	0.0080	U	ug/L	P331876	
		MCP	0.0020	U	ug/L	P331876	
		Carbamazepine**	0.0023		ug/L	P331876	
		Triclopyr**	0.0040	U	ug/L	P331876	
		Primidone**	0.0040	U	ug/L	P331876	
		Fluridone**	4.0E-04	U	ug/L	P331876	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P331875

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
 Batch ID: P331876

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P331876

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P331875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	78.0		P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P331876

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.1		P	40 - 150
Acetaminophen	41.6		P	30 - 150
Bentazon	51.3		P	40 - 150
Carbamazepine	128		P	40 - 150
Diuron	104		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	114		P	40 - 150
Imidacloprid	98.7		P	40 - 160
Linuron	95.0		P	40 - 150
MCPP	60.2		P	40 - 150
Primidone	96.6		P	40 - 150
Triclopyr	57.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P331875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929674	Sucralose	56.6	48.4	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P331876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P331876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929569	2,4-D	47.7	51.7	P/P	40 - 150
1929569	Acetaminophen	46.4	57.8	P/P	30 - 150
1929569	Bentazon	21.8	24.3	F/F	40 - 150
1929569	Carbamazepine	99.1	101	P/P	40 - 150
1929569	Diuron	73.1	75.7	P/P	40 - 150
1929569	Fenuron	87.3	91.3	P/P	40 - 150
1929569	Fluridone	112	110	P/P	40 - 150
1929569	Imidacloprid	173	182	F/F	40 - 160
1929569	Linuron	94.0	90.2	P/P	40 - 150
1929569	MCP	47.0	47.8	P/P	40 - 150
1929569	Primidone	96.0	97.0	P/P	40 - 150
1929569	Triclopyr	42.0	46.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P331875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929674	Sucralose	9.29	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P331876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929569	2,4-D	8.09	Spike	P	0 - 30
1929569	Acetaminophen	21.9	Spike	P	0 - 30
1929569	Bentazon	10.9	Spike	P	0 - 30
1929569	Carbamazepine	2.33	Spike	P	0 - 30
1929569	Diuron	3.47	Spike	P	0 - 30
1929569	Fenuron	4.48	Spike	P	0 - 30
1929569	Fluridone	2.49	Spike	P	0 - 30
1929569	Imidacloprid	4.95	Spike	P	0 - 30
1929569	Linuron	4.15	Spike	P	0 - 30
1929569	MCP	1.69	Spike	P	0 - 30
1929569	Primidone	1.08	Spike	P	0 - 30
1929569	Triclopyr	10.4	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: 1929673
 Field Sample ID: AD52590

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

Lab Sample ID: 1929673
 Field Sample ID: AD52590

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	54.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.3	P	30 - 160
EPA 8321B	Diuron-d6	53.1	P	30 - 160
EPA 8321B	Primidone-d5	76.1	P	30 - 160
EPA 8321B	Sucralose-d6	49.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	50.3	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	54.3	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	73.3	P	30 - 160
USGS O-2060-01	Diuron-d6	53.1	P	30 - 160
USGS O-2060-01	Primidone-d5	76.1	P	30 - 160
USGS O-2060-01	Sucralose-d6	49.0	P	40 - 160

Lab Sample ID: 1929674
 Field Sample ID: AD52597

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	62.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.6	P	30 - 160
EPA 8321B	Diuron-d6	56.5	P	30 - 160
EPA 8321B	Primidone-d5	81.4	P	30 - 160
EPA 8321B	Sucralose-d6	47.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	50.4	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	62.8	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	73.6	P	30 - 160
USGS O-2060-01	Diuron-d6	56.5	P	30 - 160
USGS O-2060-01	Primidone-d5	81.4	P	30 - 160
USGS O-2060-01	Sucralose-d6	47.9	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A79086
 Included Lab Sample IDs: 1929673, 1929674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	125	84.4	P/P	60 - 150
Sucralose	66.2	76.5	P/P	60 - 150

Reference Method: USGS O-2060-01
 Run ID: A79195
 Included Lab Sample IDs: 1929673, 1929674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.7	87.2	P/P	50 - 150
Acetaminophen	95.0	94.2	P/P	60 - 150
Bentazon	90.6	87.8	P/P	50 - 150
Carbamazepine	113	115	P/P	60 - 150
Diuron	99.1	93.6	P/P	60 - 150
Fenuron	98.3	97.5	P/P	60 - 150
Fluridone	107	111	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79195

Included Lab Sample IDs: 1929673, 1929674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	87.8	86.4	P/P	60 - 150
Linuron	96.5	93.3	P/P	60 - 150
MCP	85.6	86.6	P/P	50 - 150
Primidone	89.6	79.7	P/P	60 - 150
Triclopyr	89.0	88.5	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	LCS	Precision SMP	MS
EPA 8321B	Sucralose	78.0	56.6 48.4			9.29
USGS O-2060-01	2,4-D	65.1	47.7 51.7			8.09
	Acetaminophen	41.6	46.4 57.8			21.9
	Bentazon	51.3	21.8 24.3			10.9
	Carbamazepine	128	99.1 101			2.33
	Diuron	104	73.1 75.7			3.47
	Fenuron	109	87.3 91.3			4.48
	Fluridone	114	112 110			2.49
	Imidacloprid	98.7	173 182			4.95
	Linuron	95.0	94.0 90.2			4.15
	MCP	60.2	47.0 47.8			1.69
	Primidone	96.6	96.0 97.0			1.08
	Triclopyr	57.5	42.0 46.6			10.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1929673, 1929674
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1929673, 1929674
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1929673, 1929674

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/19/2017	09/21/2017	Hoor Shaik	09/21/2017	Juyoung Kim	1929673, 1929674
USGS O-2060-01	09/19/2017	09/21/2017	Hoor Shaik	09/22/2017	Julie Michelle Frank	1929673, 1929674