

Chemical Analysis Report

SO-DIST-2017-04-04-01

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

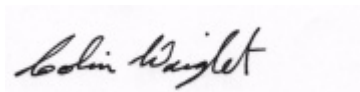
Event Description: **Collier Co Tracers & Markers**
Request ID: **RQ-2017-03-06-24**
Customer: **SO-DIST**
Project ID: **SMP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 17-APR-2017 14:40

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: COC @ 41

Collection Date/Time: 04/03/2017 11:47

Field ID: AF30224

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885568	EPA 8321B	Sucralose**	0.052		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322653	MS
		Diuron	0.0040	U	ug/L	P322653	
		Fenuron	0.0080	U	ug/L	P322653	
		Imidacloprid	0.0040	U	ug/L	P322653	
		Bentazon	0.098		ug/L	P322653	MS
		Linuron	0.0040	U	ug/L	P322653	
		Acetaminophen**	0.010	U	ug/L	P322653	
		MCP	0.0040	U	ug/L	P322653	
		Carbamazepine**	4.0E-04	U	ug/L	P322653	
		Triclopyr**	0.028	I	ug/L	P322653	
		Primidone**	0.0080	U	ug/L	P322653	RPD
		Fluridone**	0.035		ug/L	P322653	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P322530

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P322653

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P322530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.6		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P322653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	40 - 140
Acetaminophen	82.0		P	40 - 140
Bentazon	131		P	40 - 140
Carbamazepine	109		P	40 - 140
Diuron	104		P	40 - 140
Fenuron	113		P	40 - 140
Fluridone	94.8		P	40 - 140
Imidacloprid	106		P	40 - 160
Linuron	78.0		P	40 - 140
MCP	117		P	40 - 140
Primidone	114		P	40 - 140
Triclopyr	112		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P322530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884563	Sucralose	76.5	76.6	P/P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P322653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885154	2,4-D	142	139	F/P	40 - 140
1885154	Acetaminophen	65.6	67.2	P/P	40 - 140
1885154	Bentazon	227	243	F/F	40 - 140
1885154	Carbamazepine	81.2	90.0	P/P	40 - 140
1885154	Diuron	82.5	76.9	P/P	40 - 140
1885154	Fenuron	78.8	87.6	P/P	40 - 140
1885154	Fluridone	67.2	70.4	P/P	40 - 140
1885154	Imidacloprid	123	123	P/P	40 - 160
1885154	Linuron	86.8	82.4	P/P	40 - 140
1885154	MCP	109	112	P/P	40 - 140
1885154	Primidone	70.0	98.8	P/P	40 - 140
1885154	Triclopyr	119	102	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P322530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884563	Sucralose	0.131	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P322653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885154	2,4-D	2.00	Spike	P	0 - 30
1885154	Acetaminophen	2.41	Spike	P	0 - 30
1885154	Bentazon	6.81	Spike	P	0 - 30
1885154	Carbamazepine	10.3	Spike	P	0 - 30
1885154	Diuron	5.07	Spike	P	0 - 30
1885154	Fenuron	6.77	Spike	P	0 - 30
1885154	Fluridone	4.60	Spike	P	0 - 30
1885154	Imidacloprid	0.0	Spike	P	0 - 30
1885154	Linuron	5.20	Spike	P	0 - 30
1885154	MCP	3.25	Spike	P	0 - 30
1885154	Primidone	34.1	Spike	F	0 - 30
1885154	Triclopyr	15.2	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: 1885568
Field Sample ID: AF30224

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	96.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	59.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	104	P	40 - 160
USGS O-2060-01	Diuron-d6	84.0	P	40 - 150
USGS O-2060-01	Primidone-d5	80.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A75673
Included Lab Sample IDs: 1885568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	129	126	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A75682
Included Lab Sample IDs: 1885568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	86.4	99.2	P/P	60 - 150
Carbamazepine	126	131	P/P	60 - 150
Diuron	106	122	P/P	60 - 150
Fenuron	118	121	P/P	60 - 150
Fluridone	101	104	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
Run ID: A75682
Included Lab Sample IDs: 1885568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	92.0	112	P/P	60 - 150
Linuron	112	124	P/P	60 - 150
Primidone	116	89.6	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A75741
Included Lab Sample IDs: 1885568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	125	120	P/P	50 - 150
Bentazon	88.8	112	P/P	50 - 150
MCP	127	122	P/P	50 - 150
Triclopyr	109	106	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	99.6	76.5 76.6			0.131
USGS O-2060-01	2,4-D	111	142 139			2.00
	Acetaminophen	82.0	65.6 67.2			2.41
	Bentazon	131	227 243			6.81
	Carbamazepine	109	81.2 90.0			10.3
	Diuron	104	82.5 76.9			5.07
	Fenuron	113	78.8 87.6			6.77
	Fluridone	94.8	67.2 70.4			4.60
	Imidacloprid	106	123 123			0.0
	Linuron	78.0	86.8 82.4			5.20
	MCP	117	109 112			3.25
	Primidone	114	70.0 98.8			34.1
	Triclopyr	112	119 102			15.2

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1885568
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1885568
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1885568

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/04/2017	04/07/2017	Mohammad Ghaffari	04/07/2017	Mohammad Ghaffari	1885568
USGS O-2060-01	04/04/2017	04/06/2017	Fe-Val Siddell	04/09/2017	Juyoung Kim	1885568
	04/04/2017	04/06/2017	Fe-Val Siddell	04/12/2017	Juyoung Kim	1885568