

Chemical Analysis Report

SO-DIST-2017-04-27-01

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

Event Description: **Lee Co Tracers & Markers**

Request ID: **RQ-2017-03-20-20**

Customer: **SO-DIST**

Project ID: **SMP**

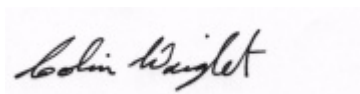
Send Reports to:
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Attn: Corey Anderson

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This Report replaces the previous Report Serial Number: 0095931

Revision certified by: Colin Wright, Program Administrator

Date Certified: 19-MAY-2017 13:13



Report Comments:

Unauthorized to report results from a second data set with tighter QC.

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: Trout Creek @ SR78; upstream side

Collection Date/Time: 04/26/2017 11:15

Field ID: AD44731

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1893377	EPA 8321B	Sucralose**	0.11		ug/L	P324163	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P324133	
		Fenuron	0.0040	U	ug/L	P324133	
		Imidacloprid	0.0040	U	ug/L	P324133	MS
		Linuron	0.0040	U	ug/L	P324133	
		Acetaminophen**	0.010	U	ug/L	P324133	
		Carbamazepine**	4.0E-04	I	ug/L	P324133	
		Primidone**	0.0040	U	ug/L	P324133	
		Fluridone**	4.8E-04	I	ug/L	P324133	

Ref. Method and Comment:
 USGS O-2060-01: Results confirmed in re-extraction.

Sample Location: Telegraph Creek @ SR78; upstream side

Collection Date/Time: 04/26/2017 10:44

Field ID: AD44729

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1893378	EPA 8321B	Sucralose**	0.38		ug/L	P324163	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P324133	
		Fenuron	0.0040	U	ug/L	P324133	
		Imidacloprid	0.0040	U	ug/L	P324133	MS
		Linuron	0.0040	U	ug/L	P324133	
		Acetaminophen**	0.010	U	ug/L	P324133	
		Carbamazepine**	4.8E-04	I	ug/L	P324133	
		Primidone**	0.0040	U	ug/L	P324133	
		Fluridone**	0.0024		ug/L	P324133	

Sample Location: Cypress Creek @ SR78; upstream side

Collection Date/Time: 04/26/2017 10:12

Field ID: AD44727

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1893379	EPA 8321B	Sucralose**	0.12		ug/L	P324163	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P324133	
		Fenuron	0.0040	U	ug/L	P324133	
		Imidacloprid	0.0060	I	ug/L	P324133	MS
		Linuron	0.0040	U	ug/L	P324133	
		Acetaminophen**	0.010	U	ug/L	P324133	
		Carbamazepine**	4.0E-04	U	ug/L	P324133	
		Primidone**	0.0040	U	ug/L	P324133	
		Fluridone**	0.0034		ug/L	P324133	

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P324163

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
 Batch ID: P324133

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P324163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	73.6		P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P324133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	105		P	40 - 140
Carbamazepine	121		P	40 - 140
Diuron	127		P	40 - 140
Fenuron	127		P	40 - 140
Fluridone	117		P	40 - 140
Imidacloprid	127		P	40 - 160
Linuron	127		P	40 - 140
Primidone	120		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P324163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893377	Sucralose	109	114	P/P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P324133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893010	Acetaminophen	111	96.2	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P324133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893010	Carbamazepine	101	108	P/P	40 - 140
1893010	Diuron	99.1	103	P/P	40 - 140
1893010	Fenuron	76.0	78.2	P/P	40 - 140
1893010	Fluridone	91.5	92.8	P/P	40 - 140
1893010	Imidacloprid	180	199	F/F	40 - 160
1893010	Linuron	104	111	P/P	40 - 140
1893010	Primidone	95.7	109	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P324163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893377	Sucralose	4.12	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P324133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893010	Acetaminophen	13.8	Spike	P	0 - 30
1893010	Carbamazepine	6.76	Spike	P	0 - 30
1893010	Diuron	4.11	Spike	P	0 - 30
1893010	Fenuron	2.85	Spike	P	0 - 30
1893010	Fluridone	1.39	Spike	P	0 - 30
1893010	Imidacloprid	10.1	Spike	P	0 - 30
1893010	Linuron	6.71	Spike	P	0 - 30
1893010	Primidone	12.6	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: 1893377
 Field Sample ID: AD44731

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	102	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	121	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	98.5	P	30 - 160
USGS O-2060-01	Diuron-d6	98.2	P	30 - 150
USGS O-2060-01	Primidone-d5	104	P	30 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1893378
Field Sample ID: AD44729

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	89.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	115	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	99.5	P	30 - 160
USGS O-2060-01	Diuron-d6	101	P	30 - 150
USGS O-2060-01	Primidone-d5	105	P	30 - 150

Lab Sample ID: 1893379
Field Sample ID: AD44727

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	106	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	103	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	99.4	P	30 - 160
USGS O-2060-01	Diuron-d6	95.7	P	30 - 150
USGS O-2060-01	Primidone-d5	101	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A76074
Included Lab Sample IDs: 1893377, 1893378, 1893379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	122	122	P/P	60 - 150
Sucralose	75.4	122	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A76315
Included Lab Sample IDs: 1893377, 1893378, 1893379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	103	96.4	P/P	60 - 150
Acetaminophen	96.4	99.2	P/P	60 - 150
Diuron	100	103	P/P	60 - 150
Diuron	102	100	P/P	60 - 150
Imidacloprid	87.8	98.8	P/P	60 - 150
Imidacloprid	96.2	87.8	P/P	60 - 150
Linuron	66.2	80.2	P/P	60 - 150
Linuron	80.2	78.6	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A76477
Included Lab Sample IDs: 1893377, 1893378, 1893379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	107	108	P/P	60 - 150
Carbamazepine	99.2	107	P/P	60 - 150
Fenuron	107	114	P/P	60 - 150
Fenuron	114	107	P/P	60 - 150
Fluridone	116	121	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A76477

Included Lab Sample IDs: 1893377, 1893378, 1893379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	121	115	P/P	60 - 150
Primidone	104	99.2	P/P	60 - 150
Primidone	99.2	96.8	P/P	60 - 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	73.6	109 114			4.12
USGS O-2060-01	Acetaminophen	105	111 96.2			13.8
	Carbamazepine	121	101 108			6.76
	Diuron	127	99.1 103			4.11
	Fenuron	127	76.0 78.2			2.85
	Fluridone	117	91.5 92.8			1.39
	Imidacloprid	127	180 199			10.1
	Linuron	127	104 111			6.71
	Primidone	120	95.7 109			12.6

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1893377, 1893378, 1893379
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1893377, 1893378, 1893379

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/27/2017	04/29/2017	Mohammad Ghaffari	04/29/2017	Mohammad Ghaffari	1893377, 1893378, 1893379
USGS O-2060-01	04/27/2017	04/29/2017	Fe-Val Siddell	05/07/2017	Juyoung Kim	1893377, 1893378, 1893379
	04/27/2017	04/29/2017	Fe-Val Siddell	05/14/2017	Juyoung Kim	1893377, 1893378, 1893379