

Chemical Analysis Report

WQAP-2018-01-16-01

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-2017-11-20-20**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection - SROC
2295 Victoria AVE
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Fort Myers, FL 33901
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This Report replaces the previous Report Serial Number: 0101891

Revision certified by: Thekkekalathil Chandrasekhar, Chemist

Date Certified: 26-JAN-2018 16:11



Report Comments:
Updated storet #

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: IMKFSHCK

Collection Date/Time: 01/11/2018 09:20

Field ID: AF46574

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959400	EPA 8321B	Sucralose**	0.020	I	ug/L	P338238	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P338081	
		Diuron	0.028		ug/L	P338081	
		Fenuron	0.0080	U	ug/L	P338081	
		Imidacloprid	0.042		ug/L	P338081	MS
		Bentazon	0.0023	I	ug/L	P338081	MS
		Linuron	0.0040	U	ug/L	P338081	
		Acetaminophen**	0.0080	U	ug/L	P338081	
		MCP	0.0020	U	ug/L	P338081	
		Carbamazepine**	4.0E-04	U	ug/L	P338081	
		Triclopyr**	0.0040	U	ug/L	P338081	
		Primidone**	0.0040	U	ug/L	P338081	
		Fluridone**	0.0042	V	ug/L	P338081	

Ref. Method and Comment:
USGS O-2060-01: "V" - Fluridone was detected in the sample and method blank.

Sample Location: IMKSLGH

Collection Date/Time: 01/11/2018 09:55

Field ID: AF46573

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959401	EPA 8321B	Sucralose**	0.052		ug/L	P338238	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P338081	
		Diuron	0.0024	I	ug/L	P338081	
		Fenuron	0.0080	U	ug/L	P338081	
		Imidacloprid	0.0028	I	ug/L	P338081	MS
		Bentazon	0.0043		ug/L	P338081	MS
		Linuron	0.0040	U	ug/L	P338081	
		Acetaminophen**	0.0080	U	ug/L	P338081	
		MCP	0.0020	U	ug/L	P338081	
		Carbamazepine**	4.0E-04	U	ug/L	P338081	
		Triclopyr**	0.0040	U	ug/L	P338081	
		Primidone**	0.0040	U	ug/L	P338081	
		Fluridone**	0.0040	V	ug/L	P338081	

Ref. Method and Comment:
USGS O-2060-01: "V" - Fluridone was detected in the sample and method blank.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P338238

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P338081

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	6.8E-04	I	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
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P338238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	86.4		P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P338081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.4		P	40 - 150
Acetaminophen	99.3		P	30 - 150
Bentazon	95.3		P	30 - 150
Carbamazepine	120		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	113		P	40 - 150
Fluridone	134		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	108		P	40 - 150
MCP	92.3		P	40 - 150
Primidone	103		P	40 - 150
Triclopyr	90.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P338238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958065	Sucralose	96.1	93.6	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P338081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958899	2,4-D	105	118	P/P	40 - 150
1958899	Acetaminophen	93.0	84.6	P/P	30 - 150
1958899	Bentazon	145	155	P/F	30 - 150
1958899	Carbamazepine	129	120	P/P	40 - 150
1958899	Diuron	116	105	P/P	40 - 150
1958899	Fenuron	116	105	P/P	40 - 150
1958899	Fluridone	137	128	P/P	40 - 150
1958899	Imidacloprid	164	148	F/P	40 - 160
1958899	Linuron	126	107	P/P	40 - 150
1958899	MCP	85.2	91.6	P/P	40 - 150
1958899	Primidone	126	113	P/P	40 - 150
1958899	Triclopyr	84.3	90.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P338238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958065	Sucralose	2.51	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P338081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958899	2,4-D	11.3	Spike	P	0 - 30
1958899	Acetaminophen	9.49	Spike	P	0 - 30
1958899	Bentazon	6.68	Spike	P	0 - 30
1958899	Carbamazepine	6.73	Spike	P	0 - 30
1958899	Diuron	9.51	Spike	P	0 - 30
1958899	Fenuron	10.1	Spike	P	0 - 30
1958899	Fluridone	7.32	Spike	P	0 - 30
1958899	Imidacloprid	10.2	Spike	P	0 - 30
1958899	Linuron	16.3	Spike	P	0 - 30
1958899	MCP	7.30	Spike	P	0 - 30
1958899	Primidone	11.3	Spike	P	0 - 30
1958899	Triclopyr	7.25	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: 1959400
 Field Sample ID: AF46574

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

Lab Sample ID: 1959400
Field Sample ID: AF46574

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	100	P	30 - 160
EPA 8321B	Carbamazepine-d10	116	P	30 - 160
EPA 8321B	Diuron-d6	105	P	30 - 160
EPA 8321B	Primidone-d5	89.4	P	30 - 160
EPA 8321B	Sucralose-d6	97.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	99.8	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	100	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	116	P	30 - 160
USGS O-2060-01	Diuron-d6	105	P	30 - 160
USGS O-2060-01	Primidone-d5	89.4	P	30 - 160
USGS O-2060-01	Sucralose-d6	97.5	P	40 - 160

Lab Sample ID: 1959401
Field Sample ID: AF46573

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	98.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	104	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	40 - 160
USGS O-2060-01	2,4-D-d3	91.6	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	98.3	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	120	P	30 - 160
USGS O-2060-01	Diuron-d6	104	P	30 - 160
USGS O-2060-01	Primidone-d5	117	P	30 - 160
USGS O-2060-01	Sucralose-d6	105	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A81482
Included Lab Sample IDs: 1959400, 1959401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	88.4	87.4	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A81531
Included Lab Sample IDs: 1959400, 1959401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.8	89.8	P/P	50 - 150
2,4-D	97.0	88.8	P/P	50 - 150
Acetaminophen	108	109	P/P	60 - 150
Bentazon	92.6	94.3	P/P	50 - 150
Bentazon	94.3	87.6	P/P	50 - 150
Carbamazepine	110	112	P/P	60 - 150
Diuron	102	106	P/P	60 - 150
Fenuron	103	105	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A81531

Included Lab Sample IDs: 1959400, 1959401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	112	116	P/P	60 - 160
Imidacloprid	98.8	101	P/P	60 - 150
Linuron	110	102	P/P	60 - 150
MCPP	88.0	88.7	P/P	50 - 150
MCPP	88.7	89.5	P/P	50 - 150
Primidone	103	102	P/P	60 - 150
Triclopyr	87.9	91.1	P/P	50 - 150
Triclopyr	95.4	87.9	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	86.4	96.1 93.6			2.51
USGS O-2060-01	2,4-D	94.4	105 118			11.3
	Acetaminophen	99.3	84.6 93.0			9.49
	Bentazon	95.3	145 155			6.68
	Carbamazepine	120	120 129			6.73
	Diuron	106	105 116			9.51
	Fenuron	113	105 116			10.1
	Fluridone	134	128 137			7.32
	Imidacloprid	115	148 164			10.2
	Linuron	108	107 126			16.3
	MCPP	92.3	85.2 91.6			7.30
	Primidone	103	113 126			11.3
	Triclopyr	90.9	84.3 90.7			7.25

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1959400, 1959401
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1959400, 1959401
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1959400, 1959401

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	01/16/2018	01/16/2018	Juyoung Kim	01/17/2018	Juyoung Kim	1959400, 1959401
USGS O-2060-01	01/16/2018	01/16/2018	Hoor Shaik	01/17/2018	Julie Michelle Frank	1959400, 1959401
	01/16/2018	01/16/2018	Hoor Shaik	01/18/2018	Julie Michelle Frank	1959400, 1959401