

Chemical Analysis Report

WQAP-2017-08-09-03

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

Event Description: **SMP 2017 kit_b/t/m PCR-FILTER & PCR-HF183**
Request ID: **RQ-2017-08-14-47**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Certified by: Colin Wright, Program Administrator

Date Certified: 06-SEP-2017 14:21

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over 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: Polk Creek @ Merry Robin Rd

Collection Date/Time: 08/09/2017 09:05

Field ID: G1TLHR0055-2017-05

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920475	EPA 8321B	Sucralose**	0.010	U	ug/L	P330674	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330060	
		Diuron	8.0E-04	U	ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	8.0E-04	U	ug/L	P330060	MS
		Bentazon	8.0E-04	U	ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCP	0.0020	U	ug/L	P330060	
		Carbamazepine**	4.0E-04	U	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0040	U	ug/L	P330060	
		Fluridone**	4.0E-04	U	ug/L	P330060	

Ref. Method and Comment:
 EPA 8321B: MS recoveries are not available due to technical difficulties.

Sample Location: Ocklawaha Creek @ SR 267

Collection Date/Time: 08/09/2017 10:05

Field ID: G1TLHR0053-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920476	EPA 8321B	Sucralose**	0.010	U	ug/L	P330674	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330060	
		Diuron	8.0E-04	U	ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	8.0E-04	U	ug/L	P330060	MS
		Bentazon	8.0E-04	U	ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCP	0.0020	U	ug/L	P330060	
		Carbamazepine**	4.0E-04	U	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0040	U	ug/L	P330060	
		Fluridone**	4.0E-04	U	ug/L	P330060	

Ref. Method and Comment:
 EPA 8321B: MS recoveries are not available due to technical difficulties.

Sample Location: Mule Creek @ SR 12

Collection Date/Time: 08/09/2017 12:45

Field ID: G1TLHR0063-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920477	EPA 8321B	Sucralose**	0.010	U	ug/L	P330674	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330060	
		Diuron	8.0E-04	U	ug/L	P330060	
		Fenuron	0.0098	I	ug/L	P330060	
		Imidacloprid	8.0E-04	U	ug/L	P330060	MS

Field ID: G1TLHR0063-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920477	USGS O-2060-01	Bentazon	8.0E-04	U	ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCP	0.0020	U	ug/L	P330060	
		Carbamazepine**	4.0E-04	U	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0040	U	ug/L	P330060	
		Fluridone**	4.0E-04	U	ug/L	P330060	

Ref. Method and Comment:
 EPA 8321B: MS recoveries are not available due to technical difficulties.

Sample Location: Mule Creek @ NW Whittle Rd

Collection Date/Time: 08/09/2017 13:05

Field ID: G1TLHR0068-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920478	EPA 8321B	Sucralose**	0.010	U	ug/L	P330674	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330060	
		Diuron	8.0E-04	U	ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	8.0E-04	UJ	ug/L	P330060	MS
		Bentazon	8.0E-04	U	ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCP	0.0020	U	ug/L	P330060	
		Carbamazepine**	4.0E-04	U	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0040	U	ug/L	P330060	
		Fluridone**	4.0E-04	U	ug/L	P330060	

Ref. Method and Comment:
 EPA 8321B: MS recoveries are not available due to technical difficulties.
 USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P330674

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	Result	Code	Units
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: P330674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	90.3	92.2	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	75.7		P	40 - 150
Acetaminophen	93.1		P	30 - 150
Bentazon	67.3		P	40 - 150
Carbamazepine	101		P	40 - 150
Diuron	96.6		P	40 - 150
Fenuron	89.9		P	40 - 150
Fluridone	86.6		P	40 - 150
Imidacloprid	69.0		P	40 - 160
Linuron	83.2		P	40 - 150
MCPP	73.5		P	40 - 150
Primidone	85.1		P	40 - 150
Triclopyr	67.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P330060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920478	2,4-D	81.6	85.6	P/P	40 - 150
1920478	Acetaminophen	92.9	93.9	P/P	30 - 150
1920478	Bentazon	42.9	45.4	P/P	40 - 150
1920478	Carbamazepine	96.8	99.2	P/P	40 - 150
1920478	Diuron	78.5	82.9	P/P	40 - 150
1920478	Fenuron	84.2	107	P/P	40 - 150
1920478	Fluridone	65.4	76.1	P/P	40 - 150
1920478	Imidacloprid	165	178	F/F	40 - 160
1920478	Linuron	82.8	93.1	P/P	40 - 150
1920478	MCPP	59.0	63.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P330060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920478	Primidone	105	113	P/P	40 - 150
1920478	Triclopyr	56.1	63.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P330674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Sucralose	2.12	LCS	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P330060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920478	2,4-D	4.78	Spike	P	0 - 30
1920478	Acetaminophen	1.06	Spike	P	0 - 30
1920478	Bentazon	5.63	Spike	P	0 - 30
1920478	Carbamazepine	2.44	Spike	P	0 - 30
1920478	Diuron	5.43	Spike	P	0 - 30
1920478	Fenuron	23.9	Spike	P	0 - 30
1920478	Fluridone	15.1	Spike	P	0 - 30
1920478	Imidacloprid	7.63	Spike	P	0 - 30
1920478	Linuron	11.7	Spike	P	0 - 30
1920478	MCP	6.66	Spike	P	0 - 30
1920478	Primidone	7.89	Spike	P	0 - 30
1920478	Triclopyr	12.7	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: 1920475
Field Sample ID: G1TLHR0055-2017-05

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	136	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.1	P	30 - 160
EPA 8321B	Diuron-d6	69.9	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	55.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	109	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	136	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	80.1	P	30 - 160
USGS O-2060-01	Diuron-d6	69.9	P	30 - 160
USGS O-2060-01	Primidone-d5	107	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1920475

Field Sample ID: G1TLHR0055-2017-05

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Sucralose-d6	55.0	P	40 - 160

Lab Sample ID: 1920476

Field Sample ID: G1TLHR0053-2017-04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.4	P	30 - 160
EPA 8321B	Diuron-d6	69.6	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	55.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	110	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	127	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	80.4	P	30 - 160
USGS O-2060-01	Diuron-d6	69.6	P	30 - 160
USGS O-2060-01	Primidone-d5	107	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.4	P	40 - 160

Lab Sample ID: 1920477

Field Sample ID: G1TLHR0063-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.8	P	30 - 160
EPA 8321B	Diuron-d6	78.2	P	30 - 160
EPA 8321B	Primidone-d5	127	P	30 - 160
EPA 8321B	Sucralose-d6	88.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	85.8	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	127	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	96.8	P	30 - 160
USGS O-2060-01	Diuron-d6	78.2	P	30 - 160
USGS O-2060-01	Primidone-d5	127	P	30 - 160
USGS O-2060-01	Sucralose-d6	88.3	P	40 - 160

Lab Sample ID: 1920478

Field Sample ID: G1TLHR0068-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	79.9	P	30 - 160
EPA 8321B	Primidone-d5	119	P	30 - 160
EPA 8321B	Sucralose-d6	84.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	73.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	114	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	101	P	30 - 160
USGS O-2060-01	Diuron-d6	79.9	P	30 - 160
USGS O-2060-01	Primidone-d5	119	P	30 - 160
USGS O-2060-01	Sucralose-d6	84.8	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78596

Included Lab Sample IDs: 1920475, 1920476, 1920477, 1920478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	80.1	80.7	P/P	50 - 150
2,4-D	92.8	80.1	P/P	50 - 150
Acetaminophen	77.8	77.2	P/P	60 - 150
Acetaminophen	87.2	77.8	P/P	60 - 150
Bentazon	111	96.5	P/P	50 - 150
Bentazon	96.5	96.2	P/P	50 - 150
Carbamazepine	80.0	82.0	P/P	60 - 150
Carbamazepine	92.9	80.0	P/P	60 - 150
Diuron	84.4	86.7	P/P	60 - 150
Diuron	90.8	84.4	P/P	60 - 150
Fenuron	88.8	88.5	P/P	60 - 150
Fenuron	90.1	88.8	P/P	60 - 150
Fluridone	102	97.1	P/P	60 - 160
Fluridone	91.6	102	P/P	60 - 160
Imidacloprid	74.7	74.5	P/P	60 - 150
Imidacloprid	87.2	74.7	P/P	60 - 150
Linuron	90.4	99.0	P/P	60 - 150
Linuron	97.2	90.4	P/P	60 - 150
MCPP	65.5	65.3	P/P	50 - 150
MCPP	95.2	65.5	P/P	50 - 150
Primidone	79.5	81.8	P/P	60 - 150
Primidone	95.6	79.5	P/P	60 - 150
Triclopyr	74.0	72.8	P/P	50 - 150
Triclopyr	96.9	74.0	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A78750

Included Lab Sample IDs: 1920475, 1920476, 1920477, 1920478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	114	121	P/P	60 - 150
Sucralose	121	120	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		Precision	MS
						SMP	
EPA 8321B	Sucralose	90.3	92.2			2.12	
USGS O-2060-01	2,4-D	75.7		81.6	85.6		4.78
	Acetaminophen	93.1		92.9	93.9		1.06
	Bentazon	67.3		42.9	45.4		5.63
	Carbamazepine	101		96.8	99.2		2.44
	Diuron	96.6		78.5	82.9		5.43
	Fenuron	89.9		84.2	107		23.9
	Fluridone	86.6		65.4	76.1		15.1

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
USGS O-2060-01	Imidacloprid	69.0	165	178			7.63
	Linuron	83.2	82.8	93.1			11.7
	MCP	73.5	59.0	63.1			6.66
	Primidone	85.1	105	113			7.89
	Triclopyr	67.8	56.1	63.7			12.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1920475, 1920476, 1920477, 1920478
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1920475, 1920476, 1920477, 1920478
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1920475, 1920476, 1920477, 1920478

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	08/09/2017	08/23/2017	Julie Michelle Frank	09/01/2017	Julie Michelle Frank	1920475, 1920476, 1920477, 1920478
USGS O-2060-01	08/09/2017	08/15/2017	Hoor Shaik	08/18/2017	Juyoung Kim	1920475, 1920476, 1920477, 1920478