

Chemical Analysis Report

WQAP-2017-10-11-06

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
(689_Overstreet Drain, 757_Bear Creek,**
Request ID: **RQ-2017-09-25-30**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Tallahassee, FL 32399-2400
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Date Certified: 01-NOV-2017 15:48



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: WOODS CREEK @ OSTEEN RD.

Collection Date/Time: 10/11/2017 10:00

Field ID: G1TLHR0067-2017-08

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936166	EPA 8321B	Sucralose**	0.022	I	ug/L	P333208	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P333230	
		Diuron	8.0E-04	U	ug/L	P333230	
		Fenuron	0.0080	U	ug/L	P333230	
		Imidacloprid	8.0E-04	U	ug/L	P333230	
		Bentazon	8.0E-04	U	ug/L	P333230	
		Linuron	0.0040	U	ug/L	P333230	
		Acetaminophen**	0.0080	U	ug/L	P333230	
		MCP	0.0020	U	ug/L	P333230	
		Carbamazepine**	4.0E-04	UJ	ug/L	P333230	SUR
		Triclopyr**	0.0040	U	ug/L	P333230	
		Primidone**	0.0040	UJ	ug/L	P333230	SUR
		Fluridone**	4.0E-04	U	ug/L	P333230	MS

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for 2,4-D and bentazon could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes. MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample. Carbamazepine-d10 and primidone-d5 surrogate spike recovery exceeding the control limits.

Sample Location: WOODS CREEK @ OSTEEN RD.

Collection Date/Time: 10/11/2017 10:00

Field ID: G1TLHR0067-2017-08 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936167	EPA 8321B	Sucralose**	0.020	I	ug/L	P333208	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P333230	
		Diuron	8.0E-04	U	ug/L	P333230	
		Fenuron	0.0080	U	ug/L	P333230	
		Imidacloprid	8.0E-04	U	ug/L	P333230	
		Bentazon	8.0E-04	U	ug/L	P333230	
		Linuron	0.0040	U	ug/L	P333230	
		Acetaminophen**	0.0080	U	ug/L	P333230	
		MCP	0.0020	U	ug/L	P333230	
		Carbamazepine**	4.0E-04	U	ug/L	P333230	
		Triclopyr**	0.0040	U	ug/L	P333230	
		Primidone**	0.0040	U	ug/L	P333230	
		Fluridone**	4.0E-04	U	ug/L	P333230	MS

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for 2,4-D and bentazon could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: FIELD BLANK

Collection Date/Time: 10/11/2017 10:20

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936168	EPA 8321B	Sucralose**	0.010	U	ug/L	P333208	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P333253	
		Diuron	8.0E-04	U	ug/L	P333253	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936168	USGS O-2060-01	Fenuron	0.0080	U	ug/L	P333253	
		Imidacloprid	8.0E-04	U	ug/L	P333253	
		Bentazon	8.0E-04	U	ug/L	P333253	
		Linuron	0.0040	U	ug/L	P333253	
		Acetaminophen**	0.0080	U	ug/L	P333253	
		MCP	0.0020	U	ug/L	P333253	
		Carbamazepine**	4.0E-04	U	ug/L	P333253	
		Triclopyr**	0.0040	U	ug/L	P333253	
		Primidone**	0.0040	U	ug/L	P333253	
		Fluridone**	4.0E-04	U	ug/L	P333253	

Ref. Method and Comment:
 USGS O-2060-01: MS accuracy for 2,4-D and bentazon could not be assessed due to high concentration of parameter in the spiked sample.
 USGS O-2060-01: MS accuracy for imidacloprid and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P333208

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
 Batch ID: P333230

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	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
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: USGS O-2060-01
 Batch ID: P333253

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	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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P333253

Component	Result	Code	Units
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: P333208

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	129		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P333230

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	77.9		P	40 - 150
Acetaminophen	118		P	30 - 150
Bentazon	84.3		P	30 - 150
Carbamazepine	130		P	40 - 150
Diuron	119		P	40 - 150
Fenuron	126		P	40 - 150
Fluridone	118		P	40 - 150
Imidacloprid	111		P	40 - 160
Linuron	120		P	40 - 150
MCP	84.0		P	40 - 150
Primidone	107		P	40 - 150
Triclopyr	82.8		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P333253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.8		P	40 - 150
Acetaminophen	125		P	30 - 150
Bentazon	80.3		P	30 - 150
Carbamazepine	126		P	40 - 150
Diuron	114		P	40 - 150
Fenuron	116		P	40 - 150
Fluridone	119		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	120		P	40 - 150
MCP	82.8		P	40 - 150
Primidone	108		P	40 - 150
Triclopyr	77.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P333208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935714	Sucralose	77.1	77.4	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P333230

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935715	Acetaminophen	99.5	87.9	P/P	30 - 150
1935715	Carbamazepine	108	101	P/P	40 - 150
1935715	Diuron	73.8	69.4	P/P	40 - 150
1935715	Fenuron	114	101	P/P	40 - 150
1935715	Fluridone	42.3	32.8	P/F	40 - 150
1935715	Linuron	90.5	85.1	P/P	40 - 150
1935715	MCP	58.0	55.4	P/P	40 - 150
1935715	Primidone	104	97.2	P/P	40 - 150
1935715	Triclopyr	59.6	58.3	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P333253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1936357	Acetaminophen	113	105	P/P	30 - 150
1936357	Carbamazepine	124	128	P/P	40 - 150
1936357	Diuron	84.3	83.1	P/P	40 - 150
1936357	Fenuron	102	102	P/P	40 - 150
1936357	Linuron	109	108	P/P	40 - 150
1936357	MCP	58.2	57.7	P/P	40 - 150
1936357	Primidone	109	109	P/P	40 - 150
1936357	Triclopyr	67.1	60.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P333208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935714	Sucralose	0.400	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P333230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935715	2,4-D	2.31	Spike	P	0 - 30
1935715	Acetaminophen	12.4	Spike	P	0 - 30
1935715	Bentazon	2.17	Spike	P	0 - 30
1935715	Carbamazepine	6.43	Spike	P	0 - 30
1935715	Diuron	4.82	Spike	P	0 - 30
1935715	Fenuron	11.9	Spike	P	0 - 30
1935715	Fluridone	10.0	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P333230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935715	Imidacloprid	3.52	Spike	P	0 - 30
1935715	Linuron	6.19	Spike	P	0 - 30
1935715	MCP	4.01	Spike	P	0 - 30
1935715	Primidone	6.99	Spike	P	0 - 30
1935715	Triclopyr	2.20	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P333253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1936357	2,4-D	1.19	Spike	P	0 - 30
1936357	Acetaminophen	6.83	Spike	P	0 - 30
1936357	Bentazon	1.22	Spike	P	0 - 30
1936357	Carbamazepine	3.34	Spike	P	0 - 30
1936357	Diuron	1.18	Spike	P	0 - 30
1936357	Fenuron	0.0976	Spike	P	0 - 30
1936357	Fluridone	26.5	Spike	P	0 - 30
1936357	Imidacloprid	3.73	Spike	P	0 - 30
1936357	Linuron	0.0737	Spike	P	0 - 30
1936357	MCP	0.794	Spike	P	0 - 30
1936357	Primidone	0.370	Spike	P	0 - 30
1936357	Triclopyr	9.94	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: 1936166
Field Sample ID: G1TLHR0067-2017-08

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	112	P	30 - 160
EPA 8321B	Carbamazepine-d10	174	F	30 - 160
EPA 8321B	Diuron-d6	128	P	30 - 160
EPA 8321B	Primidone-d5	161	F	30 - 160
EPA 8321B	Sucralose-d6	67.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	95.0	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	112	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	174	F	30 - 160
USGS O-2060-01	Diuron-d6	128	P	30 - 160
USGS O-2060-01	Primidone-d5	161	F	30 - 160
USGS O-2060-01	Sucralose-d6	67.1	P	40 - 160

Lab Sample ID: 1936167
Field Sample ID: G1TLHR0067-2017-08 DUP

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

Lab Sample ID: 1936167

Field Sample ID: G1TLHR0067-2017-08 DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	97.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	143	P	30 - 160
EPA 8321B	Diuron-d6	102	P	30 - 160
EPA 8321B	Primidone-d5	142	P	30 - 160
EPA 8321B	Sucralose-d6	67.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	71.7	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	97.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	143	P	30 - 160
USGS O-2060-01	Diuron-d6	102	P	30 - 160
USGS O-2060-01	Primidone-d5	142	P	30 - 160
USGS O-2060-01	Sucralose-d6	67.5	P	40 - 160

Lab Sample ID: 1936168

Field Sample ID: FIELD BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	139	P	30 - 160
EPA 8321B	Carbamazepine-d10	155	P	30 - 160
EPA 8321B	Diuron-d6	134	P	30 - 160
EPA 8321B	Primidone-d5	149	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	40 - 160
USGS O-2060-01	2,4-D-d3	88.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	139	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	155	P	30 - 160
USGS O-2060-01	Diuron-d6	134	P	30 - 160
USGS O-2060-01	Primidone-d5	149	P	30 - 160
USGS O-2060-01	Sucralose-d6	112	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A79594

Included Lab Sample IDs: 1936166, 1936167, 1936168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	105	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A79661

Included Lab Sample IDs: 1936166, 1936167, 1936168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	97.6	P/P	50 - 150
2,4-D	97.6	111	P/P	50 - 150
Acetaminophen	109	117	P/P	60 - 150
Acetaminophen	117	112	P/P	60 - 150
Bentazon	122	125	P/P	50 - 150
Bentazon	125	129	P/P	50 - 150
Carbamazepine	109	110	P/P	60 - 150
Carbamazepine	110	113	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79661

Included Lab Sample IDs: 1936166, 1936167, 1936168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	101	104	P/P	60 - 150
Diuron	102	101	P/P	60 - 150
Fenuron	106	108	P/P	60 - 150
Fenuron	108	107	P/P	60 - 150
Fluridone	112	115	P/P	60 - 160
Fluridone	115	115	P/P	60 - 160
Imidacloprid	106	106	P/P	60 - 150
Imidacloprid	99.6	106	P/P	60 - 150
Linuron	105	103	P/P	60 - 150
Linuron	108	105	P/P	60 - 150
MCP	104	96.2	P/P	50 - 150
MCP	96.2	99.9	P/P	50 - 150
Primidone	100	104	P/P	60 - 150
Primidone	91.7	100	P/P	60 - 150
Triclopyr	110	95.2	P/P	50 - 150
Triclopyr	95.2	99.0	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	129	77.1 77.4			0.400
USGS O-2060-01	2,4-D	77.9				2.31
	2,4-D	88.8				1.19
	Acetaminophen	118	99.5 87.9			12.4
	Acetaminophen	125	113 105			6.83
	Bentazon	84.3				2.17
	Bentazon	80.3				1.22
	Carbamazepine	130	108 101			6.43
	Carbamazepine	126	124 128			3.34
	Diuron	119	73.8 69.4			4.82
	Diuron	114	84.3 83.1			1.18
	Fenuron	126	114 101			11.9
	Fenuron	116	102 102			0.0976
	Fluridone	118	42.3 32.8			10.0
	Fluridone	119				26.5
	Imidacloprid	111				3.52
	Imidacloprid	102				3.73
	Linuron	120	90.5 85.1			6.19
	Linuron	120	109 108			0.0737
	MCP	84.0	58.0 55.4			4.01
	MCP	82.8	58.2 57.7			0.794
	Primidone	107	104 97.2			6.99
	Primidone	108	109 109			0.370
	Triclopyr	82.8	59.6 58.3			2.20

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
USGS O-2060-01	Triclopyr	77.2	67.1	60.8	SMP	9.94

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1936166, 1936167, 1936168
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1936166, 1936167, 1936168
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1936166, 1936167, 1936168

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/11/2017	10/12/2017	Juyoung Kim	10/15/2017	Juyoung Kim	1936166, 1936167, 1936168
USGS O-2060-01	10/11/2017	10/16/2017	Hoor Shaik	10/19/2017	Julie Michelle Frank	1936166, 1936167, 1936168