

Chemical Analysis Report

WQAP-2017-10-03-05

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

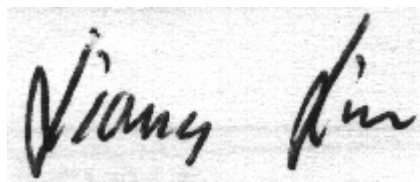
Event Description: **SMP 2017 kit_b/t/m PCR-FILTER**
Request ID: **RQ-2017-09-25-31**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
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Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-OCT-2017 14:02

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: MULE CREEK @ SR 12

Collection Date/Time: 10/03/2017 10:40

Field ID: G1TLHR0063-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933698	EPA 8321B	Sucralose**	0.010	U	ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	8.0E-04	U	ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.0E-04	U	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Sample Location: MULE CREEK @ NW WHITTLE RD.

Collection Date/Time: 10/03/2017 11:15

Field ID: G1TLHR0068-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933699	EPA 8321B	Sucralose**	0.010	U	ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	8.0E-04	U	ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.0E-04	U	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Sample Location: OTTER CREEK @ NW NEWSOME RD

Collection Date/Time: 10/03/2017 12:10

Field ID: G2TLHR0019-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933700	EPA 8321B	Sucralose**	0.023	I	ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	8.0E-04	U	ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD

Field ID: G2TLHR0019-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933700	USGS O-2060-01	MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.0E-04	U	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Sample Location: FLAT CREEK @ CR269

Collection Date/Time: 10/03/2017 13:50

Field ID: G2TLHR0020-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933701	EPA 8321B	Sucralose**	0.023	I	ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	8.0E-04	U	ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.0E-04	U	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P332642

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P332643

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P332642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	109		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P332643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.1		P	40 - 150
Acetaminophen	130		P	30 - 150
Bentazon	38.8		P	30 - 150
Carbamazepine	135		P	40 - 150
Diuron	123		P	40 - 150
Fenuron	121		P	40 - 150
Fluridone	123		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	122		P	40 - 150
MCP	79.5		P	40 - 150
Primidone	128		P	40 - 150
Triclopyr	79.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P332642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933717	Sucralose	102	107	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P332643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933900	2,4-D	60.6	62.0	P/P	40 - 150
1933900	Acetaminophen	65.7	94.0	P/P	30 - 150
1933900	Bentazon	22.4	22.5	F/F	30 - 150
1933900	Carbamazepine	122	125	P/P	40 - 150
1933900	Diuron	100	102	P/P	40 - 150
1933900	Fenuron	103	106	P/P	40 - 150
1933900	Fluridone	113	117	P/P	40 - 150
1933900	Imidacloprid	218	232	F/F	40 - 160
1933900	Linuron	118	114	P/P	40 - 150
1933900	MCP	56.1	61.0	P/P	40 - 150
1933900	Primidone	131	140	P/P	40 - 150
1933900	Triclopyr	56.7	57.1	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P332642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933717	Sucralose	4.20	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P332643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933900	2,4-D	2.05	Spike	P	0 - 30
1933900	Acetaminophen	35.4	Spike	F	0 - 30
1933900	Bentazon	0.267	Spike	P	0 - 30
1933900	Carbamazepine	2.54	Spike	P	0 - 30
1933900	Diuron	1.62	Spike	P	0 - 30
1933900	Fenuron	2.53	Spike	P	0 - 30
1933900	Fluridone	3.12	Spike	P	0 - 30
1933900	Imidacloprid	6.49	Spike	P	0 - 30
1933900	Linuron	3.05	Spike	P	0 - 30
1933900	MCP	8.37	Spike	P	0 - 30
1933900	Primidone	6.98	Spike	P	0 - 30
1933900	Triclopyr	0.773	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: 1933698
 Field Sample ID: G1TLHR0063-2017-04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	60.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	116	P	30 - 160
EPA 8321B	Diuron-d6	81.0	P	30 - 160
EPA 8321B	Primidone-d5	99.2	P	30 - 160
EPA 8321B	Sucralose-d6	74.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	67.7	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	60.3	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	116	P	30 - 160
USGS O-2060-01	Diuron-d6	81.0	P	30 - 160
USGS O-2060-01	Primidone-d5	99.2	P	30 - 160
USGS O-2060-01	Sucralose-d6	74.5	P	40 - 160

Lab Sample ID: 1933699
 Field Sample ID: G1TLHR0068-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	58.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	83.3	P	30 - 160
EPA 8321B	Primidone-d5	90.4	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1933699

Field Sample ID: G1TLHR0068-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	103	P	40 - 160
USGS O-2060-01	2,4-D-d3	59.1	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	58.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	113	P	30 - 160
USGS O-2060-01	Diuron-d6	83.3	P	30 - 160
USGS O-2060-01	Primidone-d5	90.4	P	30 - 160
USGS O-2060-01	Sucralose-d6	103	P	40 - 160

Lab Sample ID: 1933700

Field Sample ID: G2TLHR0019-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	63.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	82.3	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	81.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	58.3	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	63.8	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	118	P	30 - 160
USGS O-2060-01	Diuron-d6	82.3	P	30 - 160
USGS O-2060-01	Primidone-d5	111	P	30 - 160
USGS O-2060-01	Sucralose-d6	81.1	P	40 - 160

Lab Sample ID: 1933701

Field Sample ID: G2TLHR0020-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	47.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	82.1	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	81.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	63.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	47.4	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	120	P	30 - 160
USGS O-2060-01	Diuron-d6	82.1	P	30 - 160
USGS O-2060-01	Primidone-d5	110	P	30 - 160
USGS O-2060-01	Sucralose-d6	81.9	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A79451

Included Lab Sample IDs: 1933698, 1933699, 1933700, 1933701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.2	101	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1933698, 1933699, 1933700, 1933701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	100	88.7	P/P	50 - 150
2,4-D	104	100	P/P	50 - 150
Acetaminophen	104	87.8	P/P	60 - 150
Acetaminophen	87.8	87.8	P/P	60 - 150
Bentazon	106	85.0	P/P	50 - 150
Bentazon	85.0	87.0	P/P	50 - 150
Carbamazepine	111	89.4	P/P	60 - 150
Carbamazepine	89.4	94.5	P/P	60 - 150
Diuron	101	92.0	P/P	60 - 150
Diuron	92.0	98.5	P/P	60 - 150
Fenuron	103	93.0	P/P	60 - 150
Fenuron	93.0	92.2	P/P	60 - 150
Fluridone	102	107	P/P	60 - 160
Fluridone	107	102	P/P	60 - 160
Imidacloprid	103	94.4	P/P	60 - 150
Imidacloprid	94.4	92.4	P/P	60 - 150
Linuron	109	96.3	P/P	60 - 150
Linuron	96.3	94.3	P/P	60 - 150
MCPP	100	97.0	P/P	50 - 150
MCPP	108	100	P/P	50 - 150
Primidone	114	90.0	P/P	60 - 150
Primidone	90.0	99.6	P/P	60 - 150
Triclopyr	105	105	P/P	50 - 150
Triclopyr	121	105	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	109	102 107			4.20
USGS O-2060-01	2,4-D	78.1	60.6 62.0			2.05
	Acetaminophen	130	65.7 94.0			35.4
	Bentazon	38.8	22.4 22.5			0.267
	Carbamazepine	135	122 125			2.54
	Diuron	123	100 102			1.62
	Fenuron	121	103 106			2.53
	Fluridone	123	113 117			3.12
	Imidacloprid	115	218 232			6.49
	Linuron	122	118 114			3.05
	MCPP	79.5	56.1 61.0			8.37
	Primidone	128	131 140			6.98
	Triclopyr	79.6	56.7 57.1			0.773

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1933698, 1933699, 1933700, 1933701
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1933698, 1933699, 1933700, 1933701
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1933698, 1933699, 1933700, 1933701

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/03/2017	10/09/2017	Hoor Shaik	10/09/2017	Juyoung Kim	1933698, 1933699, 1933700, 1933701
USGS O-2060-01	10/03/2017	10/09/2017	Hoor Shaik	10/11/2017	Julie Michelle Frank	1933698, 1933699, 1933700, 1933701