

Chemical Analysis Report

TLH-ROC-2018-07-02-03

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

Event Description: **b/t/m PCR-FILTER**
Request ID: **RQ-2018-01-15-20**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-JUL-2018 15:20

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 @ SR12

Collection Date/Time: 07/02/2018 12:05

Field ID: G1TLHR0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004529	EPA 8321B	2,4-D	0.0020	U	ug/L	P347840	
		Bentazon	8.0E-04	U	ug/L	P347840	
		MCP	0.0020	U	ug/L	P347840	
		Triclopyr**	0.0040	U	ug/L	P347840	
		Imidacloprid	0.0020	U	ug/L	P347840	
		Diuron	0.0020	U	ug/L	P347840	
		Pyraclostrobin**	0.0020	U	ug/L	P347840	
		Primidone**	0.0040	U	ug/L	P347840	
		Linuron	0.0040	U	ug/L	P347840	
		Acetaminophen**	0.0080	U	ug/L	P347840	
		Fenuron	0.016	U	ug/L	P347840	
		Imazapyr**	0.011	I	ug/L	P347840	
		Carbamazepine**	4.0E-04	U	ug/L	P347840	
		Fluridone**	4.0E-04	U	ug/L	P347840	
		Hydrocodone**	8.0E-04	U	ug/L	P347840	
		Sucralose**	0.010	U	ug/L	P347806	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P347806

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P347840

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	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0042	I	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P347806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	71.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P347840

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	59.9		P	40 - 150
Acetaminophen	66.2		P	30 - 150
Bentazon	78.6		P	30 - 150
Carbamazepine	78.3		P	40 - 150
Diuron	74.9		P	40 - 150
Fenuron	91.0		P	40 - 150
Fluridone	90.2		P	40 - 150
Hydrocodone	79.6		P	40 - 150
Imazapyr	65.1		P	40 - 150
Imidacloprid	74.8		P	40 - 160
Linuron	53.2		P	40 - 150
MCPP	110		P	40 - 150
Primidone	68.0		P	40 - 150
Pyraclostrobin	81.7		P	40 - 150
Triclopyr	95.4		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P347806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004229	Sucralose	73.6	72.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P347840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004656	2,4-D	95.6	78.7	P/P	40 - 150
2004656	Acetaminophen	75.6	78.1	P/P	30 - 150
2004656	Bentazon	65.4	59.8	P/P	30 - 150
2004656	Carbamazepine	76.3	74.5	P/P	40 - 150
2004656	Diuron	71.8	64.3	P/P	40 - 150
2004656	Fenuron	83.1	82.3	P/P	40 - 150
2004656	Fluridone	89.7	78.2	P/P	40 - 150
2004656	Hydrocodone	88.7	89.2	P/P	40 - 150
2004656	Imazapyr	95.8	96.7	P/P	40 - 150
2004656	Imidacloprid	129	137	P/P	40 - 160
2004656	Linuron	54.1	41.2	P/P	40 - 150
2004656	MCPP	150	130	P/P	40 - 150
2004656	Primidone	76.5	79.5	P/P	40 - 150
2004656	Pyraclostrobin	83.4	79.1	P/P	40 - 150
2004656	Triclopyr	143	129	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P347806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004229	Sucralose	1.75	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P347840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004656	2,4-D	16.9	Spike	P	0 - 30
2004656	Acetaminophen	3.18	Spike	P	0 - 30
2004656	Bentazon	8.09	Spike	P	0 - 30
2004656	Carbamazepine	2.27	Spike	P	0 - 30
2004656	Diuron	11.0	Spike	P	0 - 30
2004656	Fenuron	0.956	Spike	P	0 - 30
2004656	Fluridone	13.6	Spike	P	0 - 30
2004656	Hydrocodone	0.644	Spike	P	0 - 30
2004656	Imazapyr	0.858	Spike	P	0 - 30
2004656	Imidacloprid	4.51	Spike	P	0 - 30
2004656	Linuron	27.3	Spike	P	0 - 30
2004656	MCPP	13.7	Spike	P	0 - 30
2004656	Primidone	3.96	Spike	P	0 - 30
2004656	Pyraclostrobin	5.25	Spike	P	0 - 30
2004656	Triclopyr	10.7	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: 2004529
Field Sample ID: G1TLHR0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	61.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	60.5	P	30 - 160
EPA 8321B	Diuron-d6	49.2	P	30 - 160
EPA 8321B	Primidone-d5	62.7	P	30 - 160
EPA 8321B	Sucralose-d6	97.1	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A85066
 Included Lab Sample IDs: 2004529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	86.3	92.7	P/P	60 - 150

Reference Method: EPA 8321B
 Run ID: A85102
 Included Lab Sample IDs: 2004529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.2	92.1	P/P	50 - 150
Acetaminophen	73.2	71.3	P/P	60 - 160
Bentazon	115	119	P/P	50 - 150
Carbamazepine	85.5	87.6	P/P	60 - 160
Diuron	91.7	86.3	P/P	60 - 150
Fenuron	88.1	87.6	P/P	60 - 150
Fluridone	105	109	P/P	60 - 160
Hydrocodone	81.3	80.5	P/P	60 - 150
Imazapyr	63.5	66.0	P/P	50 - 150
Imidacloprid	70.6	74.8	P/P	60 - 150
Linuron	80.2	78.2	P/P	60 - 150
MCPP	78.5	87.6	P/P	50 - 150
Primidone	62.9	73.8	P/P	60 - 150
Pyraclostrobin	96.9	94.9	P/P	60 - 150
Triclopyr	81.4	86.5	P/P	50 - 160

* 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 SMP	MS
			LCS			
EPA 8321B	2,4-D	59.9	95.6	78.7		16.9
	Acetaminophen	66.2	75.6	78.1		3.18
	Bentazon	78.6	65.4	59.8		8.09
	Carbamazepine	78.3	76.3	74.5		2.27
	Diuron	74.9	71.8	64.3		11.0
	Fenuron	91.0	83.1	82.3		0.956
	Fluridone	90.2	89.7	78.2		13.6
	Hydrocodone	79.6	88.7	89.2		0.644
	Imazapyr	65.1	95.8	96.7		0.858
	Imidacloprid	74.8	129	137		4.51
	Linuron	53.2	54.1	41.2		27.3
	MCPP	110	150	130		13.7
	Primidone	68.0	76.5	79.5		3.96
	Pyraclostrobin	81.7	83.4	79.1		5.25
	Sucralose	71.0	73.6	72.3		1.75
	Triclopyr	95.4	143	129		10.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2004529

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	07/02/2018	07/02/2018 16:00	Mohammad Ghaffari	07/06/2018 08:25	Mohammad Ghaffari	2004529
	07/02/2018	07/09/2018 10:00	Hoor Shaik	07/09/2018 19:16	Juyoung Kim	2004529
	07/02/2018	07/09/2018 10:00	Hoor Shaik	07/10/2018 06:48	Juyoung Kim	2004529