

Chemical Analysis Report

TLH-ROC-2017-11-01-01

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-BACR (728 Sweetwater)**
Request ID: **RQ-2017-10-30-58**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-DEC-2017 14:01



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: Sweetwater Creek @ CR270

Collection Date/Time: 11/01/2017 11:45

Field ID: G2TLHR0018-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941912	EPA 8321B	Sucralose**	0.010	U	ug/L	P334478	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335856	
		Diuron	8.0E-04	U	ug/L	P334335	
		Fenuron	0.0080	U	ug/L	P334335	
		Imidacloprid	8.0E-04	U	ug/L	P334335	
		Bentazon	8.0E-04	UQ	ug/L	P335856	
		Linuron	0.0040	U	ug/L	P334335	
		Acetaminophen**	0.0080	U	ug/L	P334335	
		MCP	0.0020	UQ	ug/L	P335856	
		Carbamazepine**	4.0E-04	U	ug/L	P334335	
		Triclopyr**	0.0040	UQ	ug/L	P335856	MS
		Primidone**	0.0040	U	ug/L	P334335	
		Fluridone**	4.0E-04	U	ug/L	P334335	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Sweetwater Creek @ CR270 DUP

Collection Date/Time: 11/01/2017 11:45

Field ID: G2TLHR0018-2017-02 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941913	EPA 8321B	Sucralose**	0.010	U	ug/L	P334478	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335856	
		Diuron	8.0E-04	U	ug/L	P334335	
		Fenuron	0.0080	U	ug/L	P334335	
		Imidacloprid	8.0E-04	U	ug/L	P334335	
		Bentazon	8.0E-04	UQ	ug/L	P335856	
		Linuron	0.0040	U	ug/L	P334335	
		Acetaminophen**	0.0080	U	ug/L	P334335	
		MCP	0.0020	UQ	ug/L	P335856	
		Carbamazepine**	4.0E-04	U	ug/L	P334335	
		Triclopyr**	0.0040	UQ	ug/L	P335856	MS
		Primidone**	0.0040	U	ug/L	P334335	
		Fluridone**	4.0E-04	U	ug/L	P334335	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Field Blank

Collection Date/Time: 11/01/2017 11:40

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941914	EPA 8321B	Sucralose**	0.010	U	ug/L	P334478	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335856	
		Diuron	8.0E-04	U	ug/L	P334335	
		Fenuron	0.0080	U	ug/L	P334335	
		Imidacloprid	8.0E-04	U	ug/L	P334335	

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941914	USGS O-2060-01	Bentazon	8.0E-04	UQ	ug/L	P335856	
		Linuron	0.0040	U	ug/L	P334335	
		Acetaminophen**	0.0080	U	ug/L	P334335	
		MCP	0.0020	UQ	ug/L	P335856	
		Carbamazepine**	4.0E-04	U	ug/L	P334335	
		Triclopyr**	0.0040	UQ	ug/L	P335856	MS
		Primidone**	0.0040	U	ug/L	P334335	
		Fluridone**	4.0E-04	U	ug/L	P334335	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P334478

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P334335

Component	Result	Code	Units
Acetaminophen	0.0080	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
Primidone	0.0040	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P335856

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
MCP	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P334478

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P334335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	58.7		P	30 - 150
Carbamazepine	98.7		P	40 - 150
Diuron	77.6		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	99.3		P	40 - 150
Imidacloprid	99.8		P	40 - 160
Linuron	95.5		P	40 - 150
Primidone	95.9		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	105		P	40 - 150
Bentazon	99.6		P	30 - 150
MCP	101		P	40 - 150
Triclopyr	103		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P334478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941595	Sucralose	104	101	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P334335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941115	Acetaminophen	99.7	102	P/P	30 - 150
1941115	Carbamazepine	62.0	61.5	P/P	40 - 150
1941115	Diuron	49.9	48.3	P/P	40 - 150
1941115	Fenuron	68.0	65.9	P/P	40 - 150
1941115	Fluridone	73.9	70.8	P/P	40 - 150
1941115	Imidacloprid	116	116	P/P	40 - 160
1941115	Linuron	66.5	68.8	P/P	40 - 150
1941115	Primidone	82.4	83.8	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941997	2,4-D	54.8	58.8	P/P	40 - 150
1941997	Bentazon	52.2	54.2	P/P	30 - 150
1941997	MCP	40.8	40.3	P/P	40 - 150
1941997	Triclopyr	41.2	39.2	P/F	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P334478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941595	Sucralose	2.93	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P334335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941115	Acetaminophen	2.40	Spike	P	0 - 30
1941115	Carbamazepine	0.777	Spike	P	0 - 30
1941115	Diuron	3.30	Spike	P	0 - 30
1941115	Fenuron	3.14	Spike	P	0 - 30
1941115	Fluridone	4.28	Spike	P	0 - 30
1941115	Imidacloprid	0.0172	Spike	P	0 - 30
1941115	Linuron	3.34	Spike	P	0 - 30
1941115	Primidone	1.66	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P335856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941997	2,4-D	7.04	Spike	P	0 - 30
1941997	Bentazon	3.75	Spike	P	0 - 30
1941997	MCP	1.10	Spike	P	0 - 30
1941997	Triclopyr	4.86	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: 1941912
 Field Sample ID: G2TLHR0018-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	75.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	107	P	30 - 160
EPA 8321B	Diuron-d6	83.0	P	30 - 160
EPA 8321B	Primidone-d5	91.0	P	30 - 160
EPA 8321B	Sucralose-d6	86.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	80.5	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	75.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	107	P	30 - 160
USGS O-2060-01	Diuron-d6	83.0	P	30 - 160
USGS O-2060-01	Primidone-d5	91.0	P	30 - 160
USGS O-2060-01	Sucralose-d6	86.7	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1941913

Field Sample ID: G2TLHR0018-2017-02 DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	77.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	119	P	30 - 160
EPA 8321B	Diuron-d6	97.1	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	85.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	91.9	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	77.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	119	P	30 - 160
USGS O-2060-01	Diuron-d6	97.1	P	30 - 160
USGS O-2060-01	Primidone-d5	111	P	30 - 160
USGS O-2060-01	Sucralose-d6	85.5	P	40 - 160

Lab Sample ID: 1941914

Field Sample ID: Field Blank

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	94.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	115	P	30 - 160
EPA 8321B	Diuron-d6	92.6	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160
EPA 8321B	Sucralose-d6	83.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	92.0	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	94.8	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	115	P	30 - 160
USGS O-2060-01	Diuron-d6	92.6	P	30 - 160
USGS O-2060-01	Primidone-d5	105	P	30 - 160
USGS O-2060-01	Sucralose-d6	83.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A80019

Included Lab Sample IDs: 1941912, 1941913, 1941914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	111	109	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A80228

Included Lab Sample IDs: 1941912, 1941913, 1941914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	96.2	93.4	P/P	60 - 150
Carbamazepine	102	106	P/P	60 - 150
Diuron	110	107	P/P	60 - 150
Fenuron	103	106	P/P	60 - 150
Fluridone	106	107	P/P	60 - 160
Imidacloprid	94.9	97.3	P/P	60 - 150
Linuron	105	105	P/P	60 - 150
Primidone	108	112	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A80527

Included Lab Sample IDs: 1941912, 1941913, 1941914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	95.8	94.5	P/P	50 - 150
Bentazon	112	113	P/P	50 - 150
MCP	96.1	101	P/P	50 - 150
Triclopyr	101	102	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	102	104	101		2.93
USGS O-2060-01	2,4-D	105	54.8	58.8		7.04
	Acetaminophen	58.7	99.7	102		2.40
	Bentazon	99.6	52.2	54.2		3.75
	Carbamazepine	98.7	62.0	61.5		0.777
	Diuron	77.6	49.9	48.3		3.30
	Fenuron	104	68.0	65.9		3.14
	Fluridone	99.3	73.9	70.8		4.28
	Imidacloprid	99.8	116	116		0.0172
	Linuron	95.5	66.5	68.8		3.34
	MCP	101	40.8	40.3		1.10
	Primidone	95.9	82.4	83.8		1.66
	Triclopyr	103	41.2	39.2		4.86

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1941912, 1941913, 1941914
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1941912, 1941913, 1941914
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1941912, 1941913, 1941914

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	11/01/2017	11/02/2017	Juyoung Kim	11/02/2017	Juyoung Kim	1941912, 1941913, 1941914
USGS O-2060-01	11/01/2017	11/06/2017	Hoor Shaik	11/10/2017	S. M. Reddy	1941912, 1941913, 1941914
	11/01/2017	11/27/2017	Hoor Shaik	11/28/2017	Julie Michelle Frank	1941912, 1941913, 1941914