Chemical Analysis Report

SW-DIST-2018-02-20-01

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

Event Description: **1443E tracers and markers**
Request ID: **RQ-2018-02-19-09**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Hannah Sprinkle

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 06-MAR-2018 15:45

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: Hillsborough River @ I-275 Bridge **Collection Date/Time: 02/19/2018 11:10**

Field ID: G2SW0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968751	EPA 8321B	2,4-D	0.0026	I	ug/L	P340165	
		Sucralose**	0.94		ug/L	P340390	
		Bentazon	0.0068		ug/L	P340165	
		MCPP	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0057	I	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Carbamazepine**	0.0011	I	ug/L	P340165	
		Fluridone**	0.0047		ug/L	P340165	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P340165

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	0.0080	U	ug/L
Fluridone	8.0E-04	U	ug/L
Imidacloprid	0.0020	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

Reference Method: EPA 8321B
Batch ID: P340390

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P340165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.9		P	40 - 150
Acetaminophen	101		P	30 - 150
Bentazon	123		P	30 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P340165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Carbamazepine	89.2		P	40 - 150
Diuron	82.2		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	81.9		P	40 - 150
Imidacloprid	94.8		P	40 - 160
Linuron	86.0		P	40 - 150
MCPP	69.9		P	40 - 150
Primidone	91.2		P	40 - 150
Triclopyr	76.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	108		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P340165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968488	2,4-D	51.0	56.1	P/P	40 - 150
1968488	Acetaminophen	130	108	P/P	30 - 150
1968488	Bentazon	32.0	34.0	P/P	30 - 150
1968488	Carbamazepine	82.7	75.0	P/P	40 - 150
1968488	Diuron	72.2	60.7	P/P	40 - 150
1968488	Fenuron	86.5	75.9	P/P	40 - 150
1968488	Fluridone	66.8	53.7	P/P	40 - 150
1968488	Imidacloprid	144	127	P/P	40 - 160
1968488	Linuron	88.8	63.2	P/P	40 - 150
1968488	MCPP	36.5	39.1	F/F	40 - 150
1968488	Primidone	87.0	75.9	P/P	40 - 150
1968488	Triclopyr	43.9	47.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968751	Sucralose	117	118	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P340165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968488	2,4-D	8.17	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P340165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968488	Acetaminophen	18.1	Spike	P	0 - 30
1968488	Bentazon	5.30	Spike	P	0 - 30
1968488	Carbamazepine	9.60	Spike	P	0 - 30
1968488	Diuron	11.7	Spike	P	0 - 30
1968488	Fenuron	13.0	Spike	P	0 - 30
1968488	Fluridone	20.4	Spike	P	0 - 30
1968488	Imidacloprid	8.00	Spike	P	0 - 30
1968488	Linuron	22.8	Spike	P	0 - 30
1968488	MCPP	6.91	Spike	P	0 - 30
1968488	Primidone	13.6	Spike	P	0 - 30
1968488	Triclopyr	8.78	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P340390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968751	Sucralose	0.439	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: 1968751
Field Sample ID: G2SW0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	52.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.0	P	30 - 160
EPA 8321B	Diuron-d6	78.6	P	30 - 160
EPA 8321B	Primidone-d5	99.0	P	30 - 160
EPA 8321B	Sucralose-d6	118	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A82285
Included Lab Sample IDs: 1968751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.4	94.1	P/P	50 - 150
Acetaminophen	112	107	P/P	60 - 150
Bentazon	130	109	P/P	50 - 150
Carbamazepine	106	124	P/P	60 - 150
Diuron	116	134	P/P	60 - 150
Fenuron	112	121	P/P	60 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A82285
Included Lab Sample IDs: 1968751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	115	121	P/P	60 - 160
Imidacloprid	106	111	P/P	60 - 150
Linuron	131	121	P/P	60 - 150
MCPP	101	86.0	P/P	50 - 150
Primidone	109	116	P/P	60 - 150
Triclopyr	104	94.1	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A82414
Included Lab Sample IDs: 1968751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.8	102	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		
					LCS	SMP	MS
EPA 8321B	2,4-D	76.9	51.0	56.1			8.17
	Acetaminophen	101	130	108			18.1
	Bentazon	123	32.0	34.0			5.30
	Carbamazepine	89.2	82.7	75.0			9.60
	Diuron	82.2	72.2	60.7			11.7
	Fenuron	111	86.5	75.9			13.0
	Fluridone	81.9	66.8	53.7			20.4
	Imidacloprid	94.8	144	127			8.00
	Linuron	86.0	88.8	63.2			22.8
	MCPP	69.9	36.5	39.1			6.91
	Primidone	91.2	87.0	75.9			13.6
	Sucralose	108	117	118			0.439
	Triclopyr	76.0	43.9	47.9			8.78

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1968751
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1968751

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	02/20/2018	02/21/2018	Hoor Shaik	02/23/2018	Julie Michelle Frank	1968751
	02/20/2018	02/21/2018	Hoor Shaik	02/24/2018	Julie Michelle Frank	1968751
	02/20/2018	02/22/2018	Julie Michelle Frank	03/02/2018	Juyoung Kim	1968751