

Chemical Analysis Report

SE-DIST-2019-12-19-05

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

Event Description: **3166, 3242 grabs**
Request ID: **RQ-2019-12-09-63**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Drew Liddick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 03-JAN-2020 10:23

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Moores Creek @ 7th

Collection Date/Time: 12/18/2019 10:05

Field ID: G2SE0016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145472	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P376159	
		2,4-D	0.035		ug/L	P376210	MS
		AMPA**	0.39	I	ug/L	P376159	
		Sucralose**	0.42		ug/L	P376159	
		Acetaminophen**	0.016	I	ug/L	P376210	
		Acetamiprid**	0.0020	U	ug/L	P376210	
		Endothall**	0.25	U	ug/L	P376159	
		Glufosinate**	0.10	U	ug/L	P376159	
		Glyphosate**	1.0		ug/L	P376159	
		Afidopyropen**	0.0020	UJ	ug/L	P376210	
		Bentazon	0.0041		ug/L	P376210	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P376210	
		Carbamazepine**	0.0018	I	ug/L	P376210	
		Clothianidin**	0.0020	U	ug/L	P376210	
		Dinotefuran**	0.0022	I	ug/L	P376210	
		Diuron	0.071		ug/L	P376210	
		Fenuron	0.016	U	ug/L	P376210	
		Fluridone**	0.0014	I	ug/L	P376210	
		Imazapyr**	0.037		ug/L	P376210	
		Hydrocodone**	0.0020	U	ug/L	P376210	
		Ibuprofen**	0.020	U	ug/L	P376210	
		Imidacloprid	0.0070	I	ug/L	P376210	MS
		Linuron	0.0040	U	ug/L	P376210	
		Mandestrobin**	0.0020	UJ	ug/L	P376210	
		MCPP	0.0060	I	ug/L	P376210	MS
		Naproxen**	0.0080	U	ug/L	P376210	
		Primidone**	0.0040	U	ug/L	P376210	
		Pyraclostrobin**	0.0020	U	ug/L	P376210	
		Thiamethoxam**	0.0020	U	ug/L	P376210	
		Tolfenpyrad**	0.0020	U	ug/L	P376210	
		Triclopyr**	0.0040	U	ug/L	P376210	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for some analytes 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: P376159

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P376210

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P376159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	96.6		P	40 - 150
Endothall	92.6		P	40 - 150
Glufosinate	92.9		P	40 - 150
Glyphosate	118		P	40 - 140
Sucralose	95.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P376210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	129		P	40 - 160
Acetaminophen	103		P	30 - 160
Acetamiprid	95.8		P	40 - 160
Afidopyropen	92.1		P	40 - 160
Bentazon	69.7		P	30 - 160
Benzovindiflupyr	93.1		P	40 - 160
Carbamazepine	92.6		P	40 - 160
Clothianidin	94.2		P	40 - 160
Dinotefuran	98.4		P	40 - 160
Diuron	79.0		P	40 - 160
Fenuron	99.2		P	40 - 160
Fluridone	90.1		P	40 - 160
Hydrocodone	106		P	40 - 160
Ibuprofen	69.7		P	30 - 160
Imazapyr	97.6		P	40 - 160
Imidacloprid	104		P	40 - 160
Linuron	56.6		P	40 - 160
Mandestrobin	91.5		P	40 - 160
MCPP	144		P	40 - 160
Naproxen	43.0		P	40 - 160
Primidone	92.8		P	40 - 160
Pyraclostrobin	90.6		P	30 - 160
Thiamethoxam	89.5		P	40 - 160
Tolfenpyrad	52.8		P	40 - 160
Triclopyr	89.6		P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P376159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145196	Acesulfame K	67.4	69.8	P/P	40 - 150
2145196	AMPA	108	116	P/P	40 - 150
2145196	Endothall	100	100	P/P	40 - 150
2145196	Glufosinate	88.9	105	P/P	40 - 150
2145196	Glyphosate	110	114	P/P	40 - 140
2145196	Sucralose	85.6	84.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P376210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144517	2,4-D	160	149	F/P	40 - 160
2144517	Acetaminophen	117	119	P/P	30 - 160
2144517	Acetamiprid	111	112	P/P	40 - 160
2144517	Afidopyropen	108	104	P/P	40 - 160
2144517	Benzovindiflupyr	103	105	P/P	40 - 160
2144517	Carbamazepine	70.2	92.9	P/P	40 - 160
2144517	Clothianidin	117	104	P/P	40 - 160
2144517	Dinotefuran	123	127	P/P	40 - 160
2144517	Diuron	80.2	81.4	P/P	40 - 160
2144517	Fenuron	94.0	97.9	P/P	40 - 160
2144517	Hydrocodone	97.0	91.9	P/P	40 - 160
2144517	Ibuprofen	73.1	75.9	P/P	30 - 160
2144517	Imidacloprid	183	167	F/F	40 - 160
2144517	Linuron	71.5	72.9	P/P	40 - 160
2144517	Mandestrobin	90.3	95.6	P/P	40 - 160
2144517	MCP	149	165	P/F	40 - 160
2144517	Naproxen	99.8	98.7	P/P	40 - 160
2144517	Primidone	101	101	P/P	40 - 160
2144517	Pyraclostrobin	92.7	97.4	P/P	30 - 160
2144517	Thiamethoxam	152	152	P/P	40 - 160
2144517	Tolfenpyrad	55.9	58.4	P/P	40 - 160
2144517	Triclopyr	101	121	P/P	30 - 160

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P376159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145196	Acesulfame K	3.56	Spike	P	0 - 30
2145196	AMPA	6.95	Spike	P	0 - 30
2145196	Endothall	0.169	Spike	P	0 - 30
2145196	Glufosinate	16.6	Spike	P	0 - 30
2145196	Glyphosate	3.81	Spike	P	0 - 30
2145196	Sucralose	1.71	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P376210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144517	2,4-D	5.47	Spike	P	0 - 30
2144517	Acetaminophen	1.61	Spike	P	0 - 30
2144517	Acetamiprid	0.488	Spike	P	0 - 30
2144517	Afidopyropen	3.76	Spike	P	0 - 30
2144517	Bentazon	12.0	Spike	P	0 - 30
2144517	Benzovindiflupyr	2.00	Spike	P	0 - 30
2144517	Carbamazepine	27.8	Spike	P	0 - 30
2144517	Clothianidin	11.6	Spike	P	0 - 30
2144517	Dinotefuran	3.15	Spike	P	0 - 30
2144517	Diuron	1.39	Spike	P	0 - 30
2144517	Fenuron	4.07	Spike	P	0 - 30
2144517	Fluridone	1.88	Spike	P	0 - 30
2144517	Hydrocodone	5.37	Spike	P	0 - 30
2144517	Ibuprofen	3.88	Spike	P	0 - 30
2144517	Imazapyr	15.9	Spike	P	0 - 30
2144517	Imidacloprid	7.44	Spike	P	0 - 30
2144517	Linuron	1.93	Spike	P	0 - 30
2144517	Mandestrobin	5.76	Spike	P	0 - 30
2144517	MCPP	10.0	Spike	P	0 - 30
2144517	Naproxen	1.10	Spike	P	0 - 30
2144517	Primidone	0.124	Spike	P	0 - 30
2144517	Pyraclostrobin	4.94	Spike	P	0 - 30
2144517	Thiamethoxam	0.145	Spike	P	0 - 30
2144517	Tolfenpyrad	4.30	Spike	P	0 - 30
2144517	Triclopyr	17.7	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2145472
Field Sample ID: G2SE0016

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	145	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.4	P	30 - 160
EPA 8321B	Diuron-d6	71.2	P	30 - 160
EPA 8321B	Endothall-d6	61.3	P	30 - 160
EPA 8321B	Endothall-d6	61.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	87.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	87.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.6	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A96502
Included Lab Sample IDs: 2145472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	92.7	P/P	60 - 160
Endothall	97.4	99.7	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A96534
Included Lab Sample IDs: 2145472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	99.1	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A96588
Included Lab Sample IDs: 2145472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.9	90.6	P/P	50 - 150
Acetaminophen	118	109	P/P	60 - 160
Acetamiprid	107	116	P/P	50 - 150
Afidopyropen	107	118	P/P	50 - 150
Bentazon	88.0	86.9	P/P	50 - 160
Benzovindiflupyr	107	111	P/P	50 - 150
Carbamazepine	114	105	P/P	60 - 150
Clothianidin	94.4	94.1	P/P	60 - 150
Dinotefuran	104	101	P/P	50 - 150
Diuron	104	104	P/P	60 - 150
Fenuron	121	109	P/P	60 - 150
Fluridone	110	122	P/P	60 - 160
Hydrocodone	107	118	P/P	60 - 150
Ibuprofen	119	104	P/P	50 - 160
Imazapyr	97.9	85.4	P/P	50 - 150
Imidacloprid	104	110	P/P	60 - 150
Linuron	100	105	P/P	60 - 150
Mandestrobin	111	110	P/P	50 - 150
MCPP	89.4	91.1	P/P	50 - 150
Naproxen	125	110	P/P	50 - 160
Primidone	113	115	P/P	60 - 150
Pyraclostrobin	117	118	P/P	60 - 150
Thiamethoxam	99.7	93.7	P/P	50 - 150
Tolfenpyrad	104	105	P/P	60 - 150
Triclopyr	85.3	87.3	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A96650
Included Lab Sample IDs: 2145472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	96.1	88.7	P/P	60 - 160
Glufosinate	83.4	92.2	P/P	60 - 160
Glyphosate	109	114	P/P	60 - 160

Quality Assurance Report

Calibration Verification

* 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	129	160	149		5.47
	Acesulfame K	114	67.4	69.8		3.56
	Acetaminophen	103	117	119		1.61
	Acetamiprid	95.8	111	112		0.488
	Afidopyropen	92.1	108	104		3.76
	AMPA	96.6	108	116		6.95
	Bentazon	69.7				12.0
	Benzovindiflupyr	93.1	103	105		2.00
	Carbamazepine	92.6	70.2	92.9		27.8
	Clothianidin	94.2	117	104		11.6
	Dinotefuran	98.4	123	127		3.15
	Diuron	79.0	80.2	81.4		1.39
	Endothall	92.6	100	100		0.169
	Fenuron	99.2	94.0	97.9		4.07
	Fluridone	90.1				1.88
	Glufosinate	92.9	88.9	105		16.6
	Glyphosate	118	110	114		3.81
	Hydrocodone	106	97.0	91.9		5.37
	Ibuprofen	69.7	73.1	75.9		3.88
	Imazapyr	97.6				15.9
	Imidacloprid	104	183	167		7.44
	Linuron	56.6	71.5	72.9		1.93
	Mandestrobin	91.5	90.3	95.6		5.76
	MCPP	144	149	165		10.0
	Naproxen	43.0	99.8	98.7		1.10
	Primidone	92.8	101	101		0.124
	Pyraclostrobin	90.6	92.7	97.4		4.94
	Sucralose	95.2	85.6	84.1		1.71
	Thiamethoxam	89.5	152	152		0.145
	Tolfenpyrad	52.8	55.9	58.4		4.30
	Triclopyr	89.6	101	121		17.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2145472
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2145472

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/19/2019 20:38	Rebecca Ware	2145472
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/20/2019 18:32	Rebecca Ware	2145472
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/24/2019 08:11	Mohammad Ghaffari	2145472
	12/19/2019	12/22/2019 09:00	Hoor Shaik	12/25/2019 19:28	Juyoung Kim	2145472