

Chemical Analysis Report

SW-DIST-2018-05-08-01

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

Event Description: **Baker w/D&B**
Request ID: **RQ-2018-05-07-14**
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: Judy Ashton

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: Colin Wright, Program Administrator

Date Certified: 04-JUN-2018 11:12

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: BAKER CREEK

Collection Date/Time: 05/07/2018 09:25

Field ID: G2SW0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1990966	EPA 8321B	2,4-D	0.0020	U	ug/L	P344935	
		Bentazon	0.0012	I	ug/L	P344935	MS
		MCP	0.0020	U	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.018		ug/L	P344935	
		Diuron	0.0083		ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0040	U	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.016	U	ug/L	P344935	
		Imazapyr**	0.010	I	ug/L	P344935	
		Carbamazepine**	4.0E-04	U	ug/L	P344935	MS
		Fluridone**	0.0010	I	ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Sucralose**	0.10	U	ug/L	P344930	
		Glyphosate**	0.78		ug/L	P344930	
		AMPA**	1.3		ug/L	P344930	MS
		Endothall**	0.10	U	ug/L	P344930	MS
		Glufosinate**	0.10	U	ug/L	P344930	MS

Sample Location: BAKER CREEK

Collection Date/Time: 05/07/2018 09:30

Field ID: G2SW0012_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1990967	EPA 8321B	2,4-D	0.0020	U	ug/L	P344935	
		Bentazon	0.0011	I	ug/L	P344935	MS
		MCP	0.0020	U	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.019		ug/L	P344935	
		Diuron	0.0084		ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0040	U	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.016	U	ug/L	P344935	
		Imazapyr**	0.011	I	ug/L	P344935	
		Carbamazepine**	4.0E-04	U	ug/L	P344935	MS
		Fluridone**	0.0012	I	ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Sucralose**	0.10	U	ug/L	P344930	
		Glyphosate**	0.69		ug/L	P344930	
		AMPA**	1.3		ug/L	P344930	MS
		Endothall**	0.10	U	ug/L	P344930	MS

Field ID: G2SW0012_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1990967	EPA 8321B	Glufosinate**	0.10	U	ug/L	P344930	MS

Sample Location: Field Blank_05072018

Collection Date/Time: 05/07/2018 09:35

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1990968	EPA 8321B	2,4-D	0.0020	U	ug/L	P344935	
		Bentazon	8.0E-04	U	ug/L	P344935	MS
		MCP	0.0020	U	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.0020	U	ug/L	P344935	
		Diuron	0.0020	U	ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0040	U	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.016	U	ug/L	P344935	
		Imazapyr**	0.0040	U	ug/L	P344935	
		Carbamazepine**	4.0E-04	U	ug/L	P344935	MS
		Fluridone**	4.0E-04	U	ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Sucralose**	0.10	U	ug/L	P344930	
		Glyphosate**	0.10	U	ug/L	P344930	
		AMPA**	0.10	U	ug/L	P344930	MS
		Endothall**	0.10	U	ug/L	P344930	MS
		Glufosinate**	0.10	U	ug/L	P344930	MS

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P344930

Component	Result	Code	Units
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P344935

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P344935

Component	Result	Code	Units
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCP	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: P344930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	93.2		P	40 - 140
Endothall	97.3		P	40 - 140
Glufosinate	95.9		P	40 - 140
Glyphosate	98.5		P	40 - 140
Sucralose	118		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P344935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	40 - 150
Acetaminophen	93.4		P	30 - 150
Bentazon	102		P	30 - 150
Carbamazepine	67.4		P	40 - 150
Diuron	65.0		P	40 - 150
Fenuron	107		P	40 - 150
Fluridone	85.4		P	40 - 150
Hydrocodone	109		P	40 - 150
Imazapyr	103		P	40 - 150
Imidacloprid	113		P	40 - 160
Linuron	101		P	40 - 150
MCP	109		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	83.4		P	40 - 150
Triclopyr	109		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P344930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990331	AMPA	36.9	34.5	F/F	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P344930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990331	Endothall	169	160	F/F	40 - 140
1990331	Glufosinate	183	139	F/P	40 - 140
1990331	Glyphosate	51.9	59.6	P/P	40 - 140
1990331	Sucralose	77.9	77.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990998	2,4-D	74.1	71.4	P/P	40 - 150
1990998	Acetaminophen	71.6	72.9	P/P	30 - 150
1990998	Bentazon	25.7	27.9	F/F	30 - 150
1990998	Carbamazepine	33.9	35.1	F/F	40 - 150
1990998	Diuron	37.5	38.0	F/F	40 - 150
1990998	Fenuron	42.6	46.5	P/P	40 - 150
1990998	Fluridone	63.7	66.1	P/P	40 - 150
1990998	Hydrocodone	67.5	71.6	P/P	40 - 150
1990998	Imazapyr	91.0	89.8	P/P	40 - 150
1990998	Imidacloprid	102	103	P/P	40 - 160
1990998	Linuron	78.7	77.8	P/P	40 - 150
1990998	MCCP	65.8	60.1	P/P	40 - 150
1990998	Primidone	60.5	55.6	P/P	40 - 150
1990998	Pyraclostrobin	69.1	69.7	P/P	40 - 150
1990998	Triclopyr	77.8	78.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P344930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990331	AMPA	4.14	Spike	P	0 - 30
1990331	Endothall	5.17	Spike	P	0 - 30
1990331	Glufosinate	27.7	Spike	P	0 - 30
1990331	Glyphosate	7.12	Spike	P	0 - 30
1990331	Sucralose	0.843	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P344935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990998	2,4-D	3.71	Spike	P	0 - 30
1990998	Acetaminophen	1.78	Spike	P	0 - 30
1990998	Bentazon	8.36	Spike	P	0 - 30
1990998	Carbamazepine	3.60	Spike	P	0 - 30
1990998	Diuron	1.32	Spike	P	0 - 30
1990998	Fenuron	8.76	Spike	P	0 - 30
1990998	Fluridone	3.74	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P344935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990998	Hydrocodone	5.84	Spike	P	0 - 30
1990998	Imazapyr	0.809	Spike	P	0 - 30
1990998	Imidacloprid	0.974	Spike	P	0 - 30
1990998	Linuron	1.24	Spike	P	0 - 30
1990998	MCP	9.09	Spike	P	0 - 30
1990998	Primidone	8.44	Spike	P	0 - 30
1990998	Pyraclostrobin	0.775	Spike	P	0 - 30
1990998	Triclopyr	0.510	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: 1990966
Field Sample ID: G2SW0012

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	84.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	56.3	P	30 - 160
EPA 8321B	Diuron-d6	59.2	P	30 - 160
EPA 8321B	Endothall-d6	113	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	46.7	P	40 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	53.5	P	40 - 160

Lab Sample ID: 1990967
Field Sample ID: G2SW0012_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.1	P	30 - 160
EPA 8321B	Diuron-d6	55.3	P	30 - 160
EPA 8321B	Endothall-d6	113	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	42.7	P	40 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	57.9	P	40 - 160

Lab Sample ID: 1990968
Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	83.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.6	P	30 - 160
EPA 8321B	Diuron-d6	68.2	P	30 - 160
EPA 8321B	Endothall-d6	126	P	50 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1990968
 Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Glyphosate 13C 15N	130	P	40 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A83887
 Included Lab Sample IDs: 1990966, 1990967, 1990968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	110	P/P	50 - 150
2,4-D	110	109	P/P	50 - 150
Bentazon	110	120	P/P	50 - 150
Bentazon	120	112	P/P	50 - 150
MCP	102	110	P/P	50 - 150
MCP	110	104	P/P	50 - 150
Triclopyr	103	112	P/P	50 - 160
Triclopyr	112	103	P/P	50 - 160

Reference Method: EPA 8321B
 Run ID: A83982
 Included Lab Sample IDs: 1990966, 1990967, 1990968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	110	110	P/P	60 - 160
Endothall	98.0	104	P/P	60 - 160
Glufosinate	123	113	P/P	60 - 160
Glyphosate	117	115	P/P	60 - 160
Sucralose	108	106	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A84229
 Included Lab Sample IDs: 1990966, 1990967, 1990968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	101	102	P/P	60 - 150
Carbamazepine	92.5	94.1	P/P	60 - 150
Diuron	94.9	97.2	P/P	60 - 150
Fenuron	99.8	102	P/P	60 - 150
Fluridone	94.1	99.0	P/P	60 - 160
Hydrocodone	106	107	P/P	60 - 150
Imazapyr	113	99.2	P/P	50 - 150
Imidacloprid	104	102	P/P	60 - 150
Linuron	110	111	P/P	60 - 150
Primidone	94.5	107	P/P	60 - 150
Pyraclostrobin	95.5	100	P/P	60 - 150

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	104	74.1	71.4		3.71
	Acetaminophen	93.4	71.6	72.9		1.78
	AMPA	93.2	36.9	34.5		4.14
	Bentazon	102	25.7	27.9		8.36
	Carbamazepine	67.4	33.9	35.1		3.60
	Diuron	65.0	37.5	38.0		1.32
	Endothall	97.3	169	160		5.17
	Fenuron	107	42.6	46.5		8.76
	Fluridone	85.4	63.7	66.1		3.74
	Glufosinate	95.9	183	139		27.7
	Glyphosate	98.5	51.9	59.6		7.12
	Hydrocodone	109	67.5	71.6		5.84
	Imazapyr	103	91.0	89.8		0.809
	Imidacloprid	113	102	103		0.974
	Linuron	101	78.7	77.8		1.24
	MCPP	109	65.8	60.1		9.09
	Primidone	103	60.5	55.6		8.44
	Pyraclostrobin	83.4	69.1	69.7		0.775
	Sucralose	118	77.9	77.2		0.843
	Triclopyr	109	77.8	78.2		0.510

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1990966, 1990967, 1990968

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/08/2018	05/09/2018 13:00	Mohammad Ghaffari	05/10/2018 19:33	Juyoung Kim	1990966
	05/08/2018	05/09/2018 13:00	Mohammad Ghaffari	05/10/2018 19:52	Juyoung Kim	1990967
	05/08/2018	05/09/2018 13:00	Mohammad Ghaffari	05/10/2018 20:11	Juyoung Kim	1990968
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 00:38	Juyoung Kim	1990966
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 01:13	Juyoung Kim	1990967
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 02:22	Juyoung Kim	1990968
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 00:36	Juyoung Kim	1990966
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 01:11	Juyoung Kim	1990967
	05/08/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 01:46	Juyoung Kim	1990968